

American Artisan

and
Hardware Record

Sheet Metal - Roofing - Warm Air Furnaces - Stoves

Vol. 93, No. 16

CHICAGO, APRIL 16, 1927

\$2.00 Per Year



The residence of Mr. W. C. Richter, 432 Buckingham Drive, Indianapolis, Indiana, Gerlach Furnace Company, Heating Contractors, No. 430 WEIR Steel Furnace.

It is the tendency of home builders today throughout the country to build not necessarily lavish homes but better homes---homes that do cost more.

That folks today want better homes is not the only reason, but also that the present day man knows that it is a better investment, not only financially, but for health, comfort and happiness.

He knows that such a home will look better for a longer time—that it will last longer and remain a better investment for a longer time.

It is your job and our job to heat these better homes, and to heat these homes better.

It is this growing better-home market that we, as exponents of the healthiest, most convenient, cleanest, easiest operated and most economical heating, have to supply.

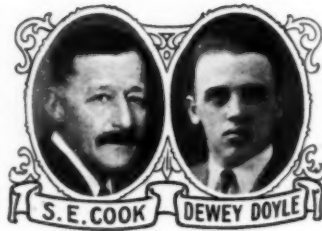
It stands to reason that if the general tendency is for better homes, then the demand for the better class of heating and better furnaces is also increasing.

The MEYER FURNACE CO.
Peoria, Illinois

Just 2

S.E. Cook of
Painsville, Ohio
Says

"I entered the furnace business at the age of fifty-nine and during the past seven years, because of the saleability of Homer Furnaces, I have accumulated a modest fortune of approximately \$20,000.00. This was accomplished in a town of 6,886 population."



of 1200!

Dewey Doyle of
Grand Rapids, Mich.
Says

"Homer Furnaces are wonderful heating plants to sell. During the past year, after all expenses were paid, I had \$4,000.00 left. I count my living as part of the expense of my business so with \$4,000.00 left to bank, I feel I am making a pretty good income."

HOW ABOUT YOU?

Above we show two of the hundreds of successful Homer dealers who are enjoying a good financial income. If your income from your business last year was inadequate, why not investigate the outstanding advantages of the Homer Agency Franchise? Any aggressive furnace dealer can duplicate or better the records mentioned above with the Homer agency.



Our Homer Agency Franchise

We ask you to write for full details regarding the Homer Agency Franchise. If you will follow our suggestions you will make money. If the earnings of your heating business last year were a disappointment to you—or if you could use an extra \$1,000.00 handily, investigate our statements. If you will follow the practical, proven-successful Homer method you will, **THIS YEAR**, make good money in your business. We'll tell about it—you decide!

HOMER FURNACE CO., Coldwater, Michigan, U. S. A.

Capacity over
30,000 Furnaces
Annually

*What's home
without a Homer?*

There's Harmony
in Homer Heated
Homes

DO YOU WANT TO BE PLACED ON THE MAILING LIST OF THE HOMER WEEKLY BULLETIN?

Without a Doubt— the Best!

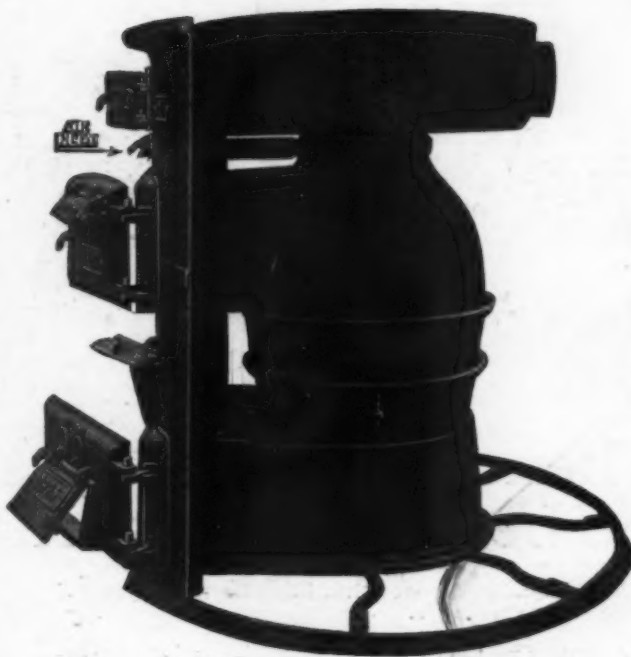
We offer you, without a doubt, the best furnace to sell to your customers. Our SUPER-SMOKELESS Furnace is a quality furnace which you can sell at a quality price.

It is a furnace which can be sold in any locality, even where cheap soft coal is the only available fuel. It will burn this fuel without smoke or soot. Under actual test the SUPER-SMOKELESS Furnace has also proved that it will burn hard coal much more efficiently than any other make.

Thousands of these furnaces installed all over the country are saving home owners many dollars in coal bills annually, and, at the same time, giving them clean, healthful heat.

A furnace that has the selling points of the SUPER-SMOKELESS is easy to sell. Its frameless feed and ashpit doors, "slip on" casing connections, and one-piece seamless radiator are a few of its many features.

Let us show you how you can increase your furnace business and make more profits. Write us *today* and we will send you complete information.



VIEW OF CASTINGS OF THE
SUPER-SMOKELESS FURNACE

UTICA HEATER COMPANY

UTICA, N. Y. — CHICAGO, ILL. — MANUFACTURERS OF THE

CELEBRATED LINE OF WARM AIR FURNACES FOR EVERY HEATING NEED



SUPERIOR PIPE

NEW IDEA PIPELESS

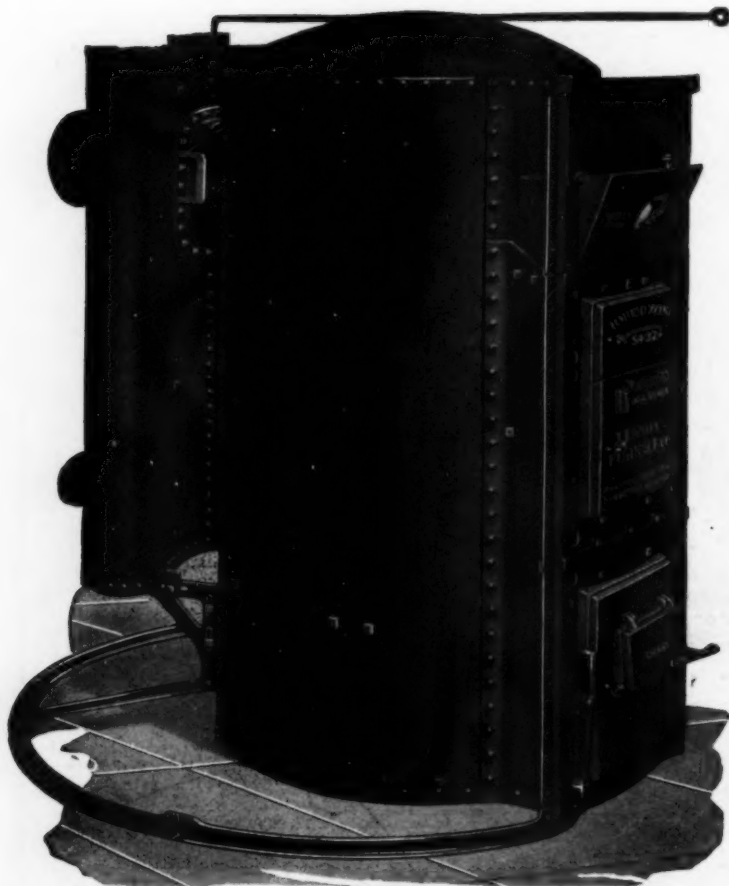
SUPER-SMOKELESS PIPE AND PIPELESS

ESSEX PIPE

ESSEX PIPELESS

NEW IDEA RECIRCULATOR

Published Weekly by American Artisan and Hardware Record, Inc., 620 South Michigan Avenue, Chicago, Illinois.
Entered as Second Class Matter June 25, 1887, at the Post Office at Chicago, Illinois, under act of March 3, 1879.



We could not make and sell more steel furnaces than any other furnace manufacturer in the world if they were not unusually good furnaces _____

When you choose to sell the Torrid Zone you become a partner to these advantages

1. A high quality furnace that has over thirty years of experience behind it.
2. A furnace made of the heaviest steel used in the manufacture of steel furnaces.
3. A ten year guarantee that truly guarantees.
4. A furnace made by a company of soundest financial strength and with the most modern manufacturing facilities.
5. An advertising and merchandising plan that is result getting and of the highest character.
6. An agency that is a real asset because it—builds profits, attracts business, closes more sales and grows in value each year.
7. You sell a known product that is at the top and you know in advance that it will be the first to develop and adopt further improvements.
8. You sell a product that is original—a steel furnace that is recommended by oil burner companies because it is absolutely leak proof.
9. You become affiliated with a group of men who are conscientiously working to improve the warm air heating industry in every branch—men who believe in warm air heating exclusively.

These are just some of the advantages—why not request us to send a field representative around to talk with you about the TORRID ZONE?

Lennox Furnace Company, Inc.
Marshalltown, Iowa Syracuse, New York

Lennox Torrid Zone Furnace

Mention AMERICAN ARTISAN in your reply—Thank you!



Sell Monitor-Made Quality Heating Systems

CALORIC

Systems of Circulating Heat

MONITOR

Pipe and Pipeless Furnaces

MERRIMAC

Guaranteed Steel Furnaces

MONITOR

Electric Oil Burner

WITH the complete MONITOR Line—including forty different styles and sizes and the Monitor Electric Oil Burner—you can take care of every warm-air heating requirement. In addition, by confining your purchases to MONITOR you gain the advantages of Quantity Discounts, Liberal Terms and 100% Service.

Details of our Attractive Proposition sent on request. Write Today!

THE MONITOR FURNACE COMPANY

108 Years of Service

Cincinnati, Ohio

Say you saw it in AMERICAN ARTISAN—Thank you!

WISE Announces

The WISE Practical Steel Furnace

a
New Steel
Furnace

Wise dealers wanted a Wise Steel Furnace—a furnace high in quality—up to the high standard set by the Wise Trade Mark for over 20 years. So we designed this Wise Steel Furnace—a furnace that has not only guaranteed high quality but practical, exclusive and worth-while features—

THE RADIATOR IS DIFFERENT from any other. Notice the cast iron soot box and clean-out at the bottom which eliminates the weakest point of steel furnace construction.

RIVETED AND WELDED BODY—a strong, durable construction and immense radiating surface.

SPECIAL DESIGN GRATES and LEVER SHAKER HANDLES. *There are other features too—write today for full details.*

Improved Construction of Wise Open Dome Furnace

Notwithstanding the prestige the old construction commanded the new Wise improvements make it still better.

NEW CELLULAR ONE-PIECE FIREPOT, heavily constructed. A series of air cells which extend from bottom to top enable air to be pre-heated before entering above and into the fuel. This supplies a continuous and evenly distributed air blast providing complete combustion.

ELBOW SHAPED FLUE COLLAR ON INSIDE OF RADIATOR TURNED UP so all of the heat within the radiator must follow the castings to the top before entering flue. *Other features too—see our latest circulars illustrating and describing construction in detail.*

New Wise Ideas Improve Return Flue Radiator Type

The entirely new and PATENTED Radiator in this furnace is something out of the ordinary. The radiator is constructed to eliminate the objectionable dirt collecting and clean-out features of the ordinary return flue types.

The feed chamber and the top radiator are so constructed as to allow communication between them which brings the opening of the fire flues of the radiator directly into the feed chamber, making the flues readily accessible for cleaning through the upper feed door. The dirt falls directly into the firepot, eliminating the necessity of taking the dirt out by means of a narrow neck passage. This is a wonderful advantage to the owner. An easy cleaning radiator means that it will be kept clean, and a clean radiator means increased efficiency.

The one-piece cellular firepot is a feature of this Wise furnace also.

Now, with this Wise Line, you have the most complete quality furnace line to meet your every requirement, enabling you to confine your purchases to one house.



The New Wise Steel Furnace



The New 40 Series



The New 20 Series

THE WISE FURNACE CO.
AKRON, OHIO

When writing mention AMERICAN ARTISAN—Thank you!



Sell Better Heating and these features which provide it

YOUR battle is won when you have something *big* to advertise and show your customers.

Nothing is a better heating feature than the big selling feature of the *Famous Three-Way Air Blast of Ath-A-Nor Furnaces.*

The Ath-A-Nor Air Blast supplies additional oxygen which combines with the combustible elements and produces clean, hot flames which consume the heavy smoke and soot of the soft coal.

This means more sales because no other furnace has this patented feature which provides better operation, fuel saving, and higher heating efficiency.

It means more sales because this is a *tried* feature of years standing—not just a new-fangled talking point. Sell Better Heating by offering truly better quality—expertly designed furnaces of superior quality and workmanship.

Ath-A-Nor Furnaces are famous for their better heating features—sell better heating easier by selling Ath-A-Nor Furnaces.

Write today for full agency
details and catalog

The MAY-FIEBEGER FURNACE CO.

Newark, Ohio



THATCHER PIPELESS FURNACE

NOTE that the inner casing of the Thatcher Pipeless Furnace extends all the way to the base, eliminating all troublesome legs and assuring an easier installation.

With the high cast iron front there is no need to cut the casings around small openings, a big saving in your time.

The cup joints are so deep that you can easily make the installation gas-tight. And the economy of the furnace will win you many customers.

*Full trade information and printed matter on
all Thatcher products will be sent on request.*

THE THATCHER COMPANY
Since 1850

NEW YORK
21 W. 44th St.

NEWARK, N. J.
39-41 St. Francis St.

CHICAGO
341 N. Clark St.

THATCHER

BOILERS-FURNACES-RANGES



Get This New Big Furnace Book

A COPY is yours for two cents—the cost of a postage stamp.

Just write "Send me your 1927 catalogue" together with your name and address and it will be mailed promptly, postpaid and without any obligation.

It's really more than a catalogue for it contains much valuable information on warm air heating apart from the illustrations and descriptions of Rybolt furnaces.

We think it's the most attractive furnace book ever published, too.

Write for your copy now.

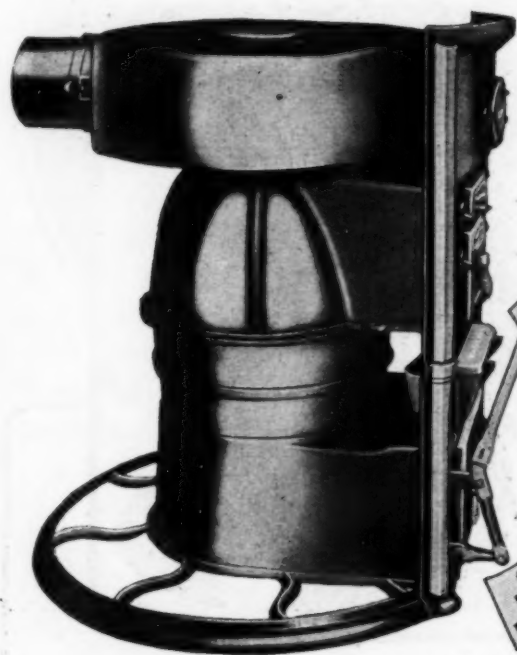
**The RYBOLT Heater
Company**

ASHLAND

OHIO



The Parade of ROBINSON Features



It takes a mighty good furnace to make a parade of its features. Note them one by one. Every banner tells a story of real merit.

THE Robinson "Gem"—the quality furnace—yet still in the competitive field—a furnace with more features, which means more sales. The "Gem" enables the live dealer to meet and beat competition.

The parade tells its own story. To dealers, it means an invitation to get in the band wagon.



Write for prices to get into the Big Tent
of Profitable Sales

The Robinson Gem

Robinson Furnace Co.
205 West Lake St., Chicago, Ill.

When writing mention AMERICAN ARTISAN—Thank you!

American Self-Cleaning Furnace

An Efficient Warm Air Furnace

Highly Improved



HERE is the warm air furnace that householders have been looking for. The cleaning feature insures delivery of the maximum amount of heat from the fuel burned.

There are many superior mechanical features about the American Self Cleaning Furnace which will make it a leader in your community.

Superior Features

1. Covered Joints Throughout
2. Large Upright Shaker
3. Duplex Shaking and Dumping Grates
4. Large Fuel Door
5. Extra Heavy Construction

Orders received in the morning mail shipped the same day

Write for Catalog and Prices

American Foundry & Furnace Co.

Dept. 400

Bloomington, Ill.

NIAGARA FURNACES



Quality Materials Throughout

CHARCOAL Iron supplemented with clean Pig Iron, with absolutely no scrap gives that long life for which the

NIAGARA FURNACES ARE FAMOUS

They are laboratory tested from start to finish.

Every furnace is mounted and assembled before leaving our plant to ensure proper fit.

The Niagara is a profitable furnace for you to handle. It will make friends as well as money for you.

Write or wire us today for the benefits which our years of study of the furnace business can bring you.

The Forest City Foundry and Manufacturing Co.

1220 Main Avenue

Cleveland, Ohio

Also Manufacturers of Monarch Furnaces

The New Series "C" MONCRIEF FURNACE

*Includes Every Desirable Feature
With Many New Improvements*

IN the history of warm air heating there has never been produced a furnace the equal of this. It is newly designed all the way through, taking into consideration the latest findings of the best warm air heating practise. Every element in furnace construction that makes for the more efficient, more economical production of heat has been included, together with new improvements found in no other furnace.



The Sure Foundation of Heating Comfort

Smoke and Clean Out Collars, Feed Section and Ash Pit have been extended through casing and front to eliminate the usual joints at these points.



The only joints inside the casing are these four, all of the "double seal" type, each having two bearing surfaces and two places for cement.

Here is a furnace which, correctly installed according to the Standard Code, positively assures the fullest degree of healthful, comfortable heating with low fuel cost.

The Radiator, Feed Section (or combustion chamber) and Ash Pit are each of solid one-piece construction, without a single joint inside the casing; except the joints formed where the sections go together, and these are of the "double seal" type. The Fire Pot is purposely made in two pieces to provide for expansion and contraction.

The Grate Bars are easily operated with a long shaker handle. They are mounted in a frame that is removed without tools in only a couple of minutes to make necessary replacements. No work, no trouble.

It is to the interest of every contractor and builder to get acquainted with the advantages of this remarkable furnace. Send for complete descriptive literature.

The Henry Furnace & Foundry Co.
3471 East 49th St. Cleveland, Ohio

DISTRIBUTORS

Carr Supply Co.
412 N. Dearborn St.
Chicago, Ill.

F. H. Hanlon
Batavia, N. Y.

Johnson Furnace Co.
Kansas City, Mo.

Moncrief Furnace Company
Atlanta, Ga.

Moncrief Furnace & Mfg. Co.
Dallas, Texas

Moncrief Warm Air Heating Pipe and Fittings

High grade materials, careful, accurate workmanship and promptness in shipping from stocks complete at all times make us your reliable source of supply.

Send for our big Pipe and Fittings Book



The Radiator is cast one solid piece with smoke and clean out collars cast solid with it. The walls of this radiator are of even thickness throughout.



The Feed Section, a solid, one-piece casting has sloping top to carry the smoke and gases upward when feed door is opened. Feed door fits direct to front of feed section, edges of both being ground smooth and straight.



Fire Pot, with straight sides to prevent ashes banking, is cast in two sections to provide for contraction and expansion.



Ash Pit is cast solid, without a single joint. Four Bar Grate, mounted in frame, slides readily into position on ways or runners cast in side of ash pit. This frame is easily removed without tools in a very short time. Flat Dump Grate may be had if desired.

The Henry Furnace & Foundry Co., Cleveland:

Please send me complete descriptive literature of your new Series "C" Moncrief Furnace.

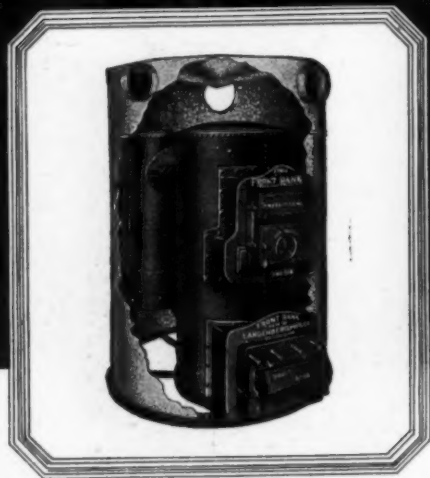
Name _____

Street _____

City _____

State _____

A. A.



?

How much can you heat with a 22 in. pot?

When the ratio of the heating surface to the grate area in a furnace is greater than 20 to 1; you can get 2% more in heating capacity for each degree (in ratio) above 20.

The ratio of our No. 454, Front Rank, with 22 inch fire pot, is 34.3. Applying the rule just quoted, we have:

*Front Rank
#454 has
29% greater
heating capacity
than average 22 in. pot*

$$\begin{array}{r} 34.3 \\ 20.0 \\ \hline 14.3 \\ \times 2\% \\ \hline 28.6\% \end{array}$$

A 29% greater heating capacity using the same amount of coal and having the same size fire pot! The greater satisfaction that your customer will get out of this extra capacity will prompt him to recommend you to others. Front Rank Warm Air Heating Systems are always the basis of a sound, profitable business for the installer. Write for our proposition.

LANGENBERG MFG. CO.
4545 N. Euclid Ave. St. Louis

FRONT RANK
TRADE NAME REGISTERED
HEATING SYSTEMS

Guarantee—

Every Front Rank Warm Air Heating System is guaranteed by the Langenberg Manufacturing Company (to maintain an average inside temperature of 70° in zero weather) when installed according to the Standard Code.

WELL MADE WELL ADVERTISED
WELL KNOWN

L228

The NEW Floral City Queen Furnace



An entirely new furnace with many advanced improvements

WE not only combined all that was best in furnace construction, but developed new features not found on other furnaces. We can't list all of the superior features of this New Floral City Queen in this advertisement, but—

Here are a few of the big points:

1. Large one-piece cast radiator with extra large opening from combustion chamber with direct-indirect draft damper.
2. Smoke and cleanout collar extend through the casing and front. Throats of feed door and ash pit extend through front and both doors and throat are disc ground to insure perfect fit.
3. Only four joints inside casing and these joints are extra deep covered joints.
4. Extra large water pan—lever shaker handle—rocker type grates—heavy ribbed two section straight fire pot—large one-piece roomy ash pit and other improvements.

Constructed and rated to meet all requirements of the Standard Code

WRITE FOR OUR AGENCY PROPOSITION
TODAY.

Floral City Heater Company
Monroe, Michigan

CHICAGO OFFICE
1654 Monadnock Building

DETROIT BRANCH
4452 Cass Ave.

*Outstanding
quality features
make--*

St. Clair **Warm Air Furnaces** *your logical choice*

DON'T be satisfied with anything but real quality from now on—you will find that you cannot afford to.

St. Clair furnaces are distinctly of the better class and yet very low priced.

Notice from the illustration the heavy massive construction. Even the large water pan shows the greater weight and strength of St. Clair Furnaces.



ONE thing you will notice about St. Clair furnaces is that the joints are so designed and constructed that expansion will not cause pulling apart.

You can sell *clean heat* with the St. Clair line.

The Ash Pit is unusually large and roomy, keeping the ashes at sufficient distance from grates to prevent burning out. The grate bars have three burning surfaces and are easily changed.

Fire Pots—two-piece or one-piece—optional. Straight and smooth inside. Reinforcing ribs on outside.

You can see other features from the illustrations also—notice one-piece base and ring, large doors, large extra heating surface combustion chambers and radiators. The horse-shoe type can also be furnished with double doors.

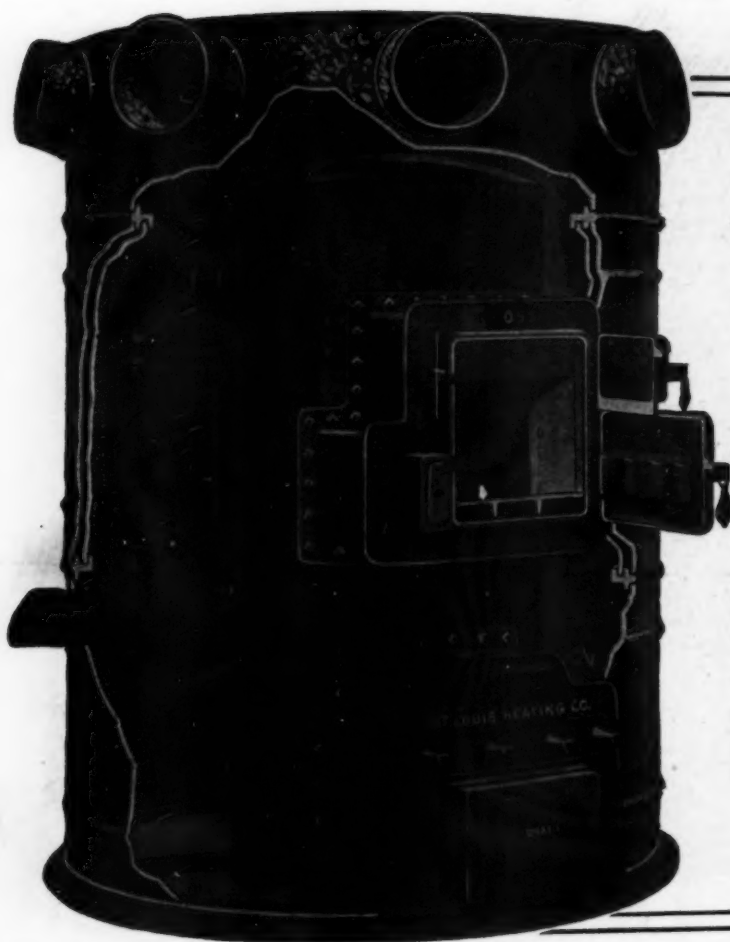
We want to show you real quality of material and design in St. Clair furnaces—just write us today for prices, agency details and catalog.

Our next advertisement will feature
our new Heavy Duty type Furnaces

ONE OF THE MOST COMPLETE LINES OF
CAST FURNACES IN THE COUNTRY.

Belleville Stove & Range Co.
ESTABLISHED 1880 Belleville, Illinois

Mention AMERICAN ARTISAN in your reply—Thank you!



**Only real quality
can make real
profits for you—**

AND when you decide to sell steel furnaces, which you will some day, remember that the construction of the furnaces illustrated here has the features of construction that have made

“HOME COMFORT” Steel Furnaces

famous favorites for over half century

True their construction has changed with time, but only when real quality features could be added. Recent improvements on Home Comfort furnaces have increased their heating surfaces and made them more efficient and economical consumers of fuel. (Notice the gas and soot consuming features shown on the feed door.)

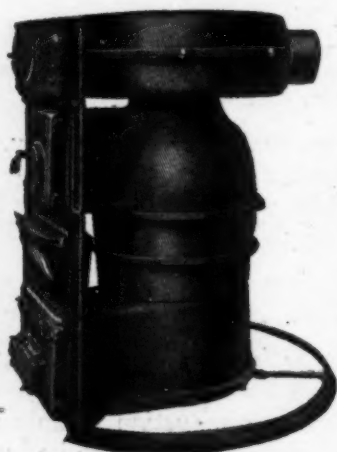
We have a special circular called “A Dozen Appeals to Reason” which points out some of the “Home Comfort” features. Write for it today.

ST. LOUIS HEATING CO.

2901-11 Elliot Ave., St. Louis, Mo.

PITTSBURGH DISTRIBUTOR
Wagner Bros., 2605 East Street

**S
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C
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**F
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DEALERS

Should get our car load prices,
also EDUCATIONAL CIRCULAR.

STANDARD CODE
calculations of pipe size for
192 conditions and size of rooms

AT A GLANCE

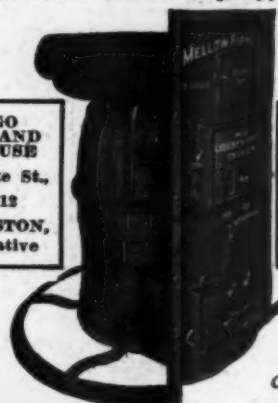
SECURITY STOVE & MFG. CO.
Kansas City, Mo.

MELLOW

*The
Improved
Heating
Unit*

SEE this highly improved warm air heating plant. A real one-piece radiator—A truly convenient clean-out—A remarkably designed combustion chamber—notice the illustration. A dozen other important features that we want to tell you all about.

Write for complete details—study this high quality fairly priced furnace now—secure the agency for your territory.



**CHICAGO
BRANCH AND
WAREHOUSE**
6 East Lake St.,
Room 512
M. BRAUNSTON,
Representative

1927 AGENCIES
We have a few
very choice ter-
ritories still open
for 1927. Let
us show you a
truly remarkable
agency proposi-
tion.

Write for
catalog today

Liberty Foundry Company
St. Louis, Missouri

Notice The "Western" Boiler Plate Radiator



Its Features are:

- One piece side wall construction.
- Unusually large size.
- Braced Support counteracting expansion and contraction.
- Two or three flue travel.
- Rust proof bottom of galvanized steel.
- Collar connections have telescope joint, asbestos packed.

THE Western Furnace has many other practical features of design which make it an unusually easy and satisfactory heater to sell. Among them are the top, corrugated to take up expansion and contraction, one-piece body construction without rivets on front extension, and heavy double grates which are easily shaken from a standing position.

Ask for our special dealer's proposition, which includes long profits, easy terms, and a special selling plan with many advertising helps.

Western Steel Products Co.
130 Commonwealth Ave.
Duluth, Minnesota, U. S. A.



"A Better Product"

ON this basis—to build a better product—one that will give better service, last longer, prove more economical—our business has been built.

Because of this high standard this business has grown. Likewise the business of our dealers has increased, producing increased profits for them year after year.

Vernois

Furnaces

are business builders. Their superior construction and numerous features place them beyond the competition of ordinary furnaces.

Vernois Furnaces are made of special heat resisting grey iron, properly proportioned, with the weight so distributed that parts subject to the greatest strain are heaviest.

You can increase your furnace profits through this better line of furnaces. Write today for our interesting proposition.

Mt. Vernon Furnace & Mfg. Company
Mt. Vernon, Illinois



No. 20 Series

NOT only consistent good results but results out of the ordinary, AMERICAN ARTISAN is read in England, France, Germany, Australia and by many in Canada.

The Floral City Heater Co.
MAKERS OF FLORAL CITY FURNACES & BOILERS

W. P. BAIER
SALES MANAGER
4452 CASS AVENUE
DETROIT, MICHIGAN

Floral City Heater Co.
4452 Cass Avenue,
Detroit, Michigan.



April 5th, 1927.

The American Artisan,
620 South Michigan Avenue,
Chicago, Illinois.

Gentlemen:

The Floral City Heater Company, as you know, has subscribed to, and advertised in your publication for a number of years.

As evidence of the excellent results obtainable from advertising in the "American Artisan", the writer believes you will be interested in a postcard received by us this morning, following the appearance of an add covering the New Floral City Queen Furnace, which indicates that your magazine is read by people all over the world. The card was sent by Mr. Ernst Schleitzer of Erla-Sa. Germany, and reads as follows:

(Dear Sir:
referring to your advertisement in the "American Artisan" I beg to send immediately your catalogue for J have greatest interest for your stoves.
J thank you in advance very much
and remain

your obedient
E. Schleitzer)

Erla-Sa. March 16, 1927.
S./L.

With best wishes for the continued success of the "American Artisan" we are,
Yours very truly,

THE FLORAL CITY HEATER COMPANY.

W. P. Baier
Vice-President.

7-7-EX.

No. 7
of a
Series
of
Letters

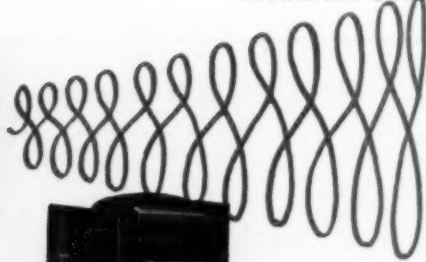
AMERICAN ARTISAN—620 South Michigan Avenue
CHICAGO, ILLINOIS

YOU may send us full information concerning your publication and plans for a result-producing advertising campaign.

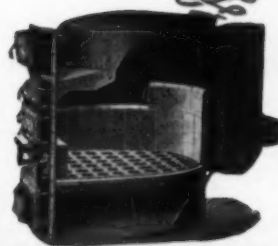
Name

Address

Mention AMERICAN ARTISAN in your reply—Thank you!



Success Heaters



*The most
complete
quality line*

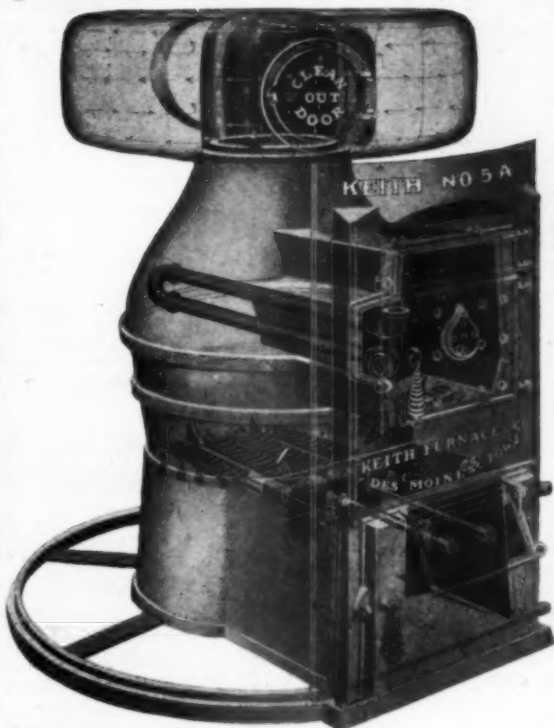
THERE is a Success Heater especially designed for any warm air heating need you can think of.

Write for our complete catalog and agency details.

Success Heater Manufacturing Co., Des Moines, Iowa

The Finest Popular Priced Furnace On The Market

- [1 No direct damper to cause heat loss.]
- [2 One-piece radiator, strongest construction.]
- [3 Extra large radiating surface.]
- [4 Tapered body design increases heating efficiency.]
- [5 Deep cup joints.]
- [6 Expansion fire pot joint.]
- [7 Gear controlled grates, easily removed.]
- [8 Deep ash pit.]
- [9 Solid one-piece bottom, easy to install.]



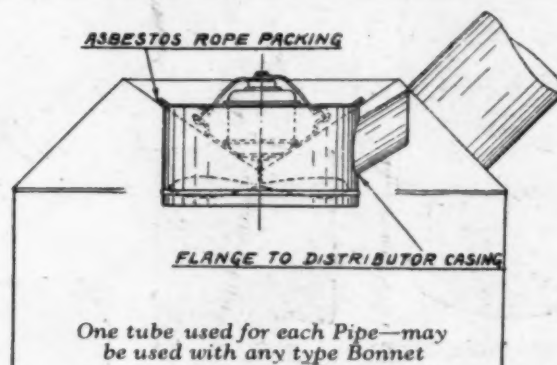
- [10 Large open center radiator construction, delivers more heat.]
- [11 Reversible flue radiator.]
- [12 Indirect smoke travel thru radiator insures continuous heat.]
- [13 One-piece panel front, built for long life.]
- [14 Smoke consumer and dust flue.]
- [15 Large double-feed doors.]
- [16 Handy draft door.]
- [17 Large ash door.]
- [18 Convenient pocket for water coil—out-of-way location.]

KEITH FURNACE CO.

Des Moines, Iowa

YOU CAN DO THIS

Install ROBINSON HEAT DISTRIBUTORS in two hours in any Warm Air Furnace Bonnet.



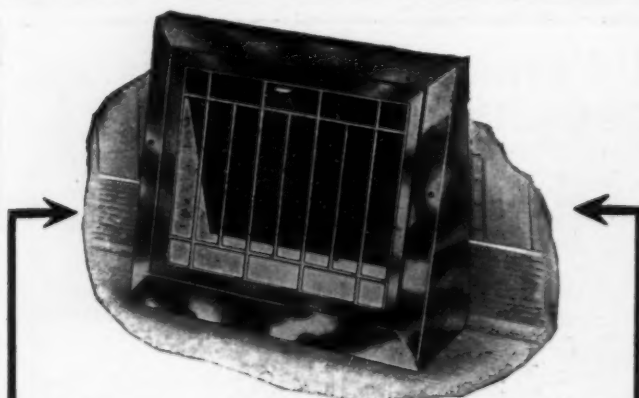
THE ROBINSON HEAT DISTRIBUTOR has real flexibility. The tube sizes leading to the furnace heating pipes depend upon the requirements of each individual pipe—tubes ranging from three to five inches may be used. Each unit is equipped with a three speed motor, giving an air delivery of 800, 1350 and 1500 Cubic Feet of Air per Minute. Easily installed in any type bonnet—prices and installation directions forwarded promptly upon receipt of your request.

Manufactured by

THE A. H. ROBINSON COMPANY

5103 Detroit Avenue

Cleveland, Ohio



Yes, we admit

*it's Attractive
it's Efficient
it's Economical
it's the Vol-Yum register*

**for volume Furnacework
for volume Profits.**

Mail coupon today for interesting prices and information.

Rock Island Register Co.,
Rock Island, Ill.

YOU may send your interesting prices and information on Vol-Yum registers.

Name

Street No.

City and State

**Healthful, balmy
air like you breathe
in a pine forest
possible with the→**

(Let us tell you how to obtain
the healthful odor of pine trees
in your home with the Humidair)



Here is an automatic humidifier that is 100% efficient—yet economical.

It is the only humidifier on the market having a Patented Hygrometer and sight feed regulating automatic water supply. It is easy to install on the top of any furnace. It is absolutely fool-proof—truly practical and above all GUARANTEED to please or money refunded. Attaches to city water and will last a lifetime being constructed of cast iron galvanized. Humidair ADDS years to your life!

You can make large profits equipping furnaces in your territory. Write today for prices and full details.

J. ROEMER HEATING COMPANY
THE BUILDERS' EXCHANGE CLEVELAND, OHIO



**WRITE
FOR
OUR
CATALOG**

**High Grade
Finely Finished
STOVE TRIMMINGS**
Original, distinctive designs

IF YOU want superior quality and real service at prices that can't be beat—
SEE US NOW

THE FANNER MFG. CO.
Brookside Park CLEVELAND, OHIO



Outstanding Points of Superiority

YOU men who know furnaces can spot the superior points of a better construction in a minute. There are several reasons why the wise furnace man chooses

HERO "600" FURNACES

Check off these points and see if you know of a furnace that offers as much at any price.

1. Air-Washer humidifier system.
2. Smoke and gas tight interlocking joints.
3. Upright handle shaking type roller grates.
4. Wave top combustion chamber.
5. Air jet combustion.
6. Sectional radiator—smooth inside.

One look at a HERO "600" will convince you of its inbuilt superiority.

Dealerships Open

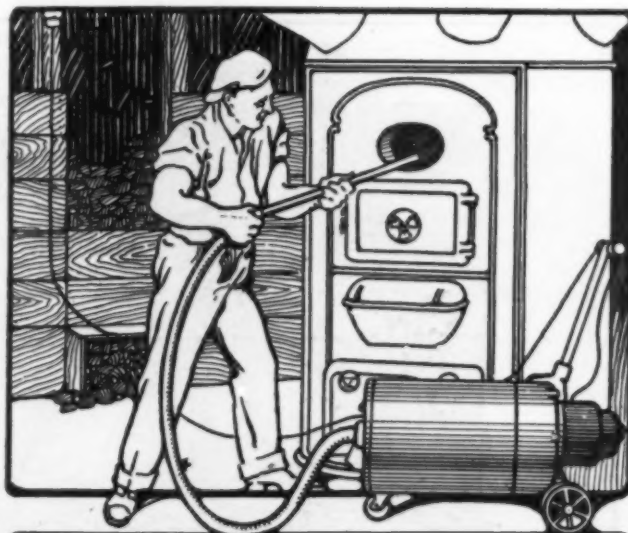
We have a special exclusive proposition for the dealer who wants to build a quality business.

Write for Details

HERO FURNACE CO.

101 DeKalb Street

Sycamore, Ill.



Handle a Larger Volume of Business

Clean Furnaces this NEW QUICK WAY!

NOW furnace men can increase their profits $\frac{1}{2}$ to $\frac{3}{4}$ by handling a larger volume of cleaning business. The Sturtevant Portable Furnace Cleaner opens the way. One man operating a Sturtevant Portable Furnace Cleaner can clean from five to eight furnaces a day and do a more thorough cleaning job than he could by using the old sack and brush method.

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The Sturtevant Portable Furnace Cleaner has a powerful suction. It is ruggedly built, easy to handle and can be operated from an ordinary electric light socket.

Write us today for further information and price on this cleaner. Use the coupon below—NOW!



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BOSTON, MASS.

Dept. AA-49

B. F. Sturtevant Company,
Hyde Park, Boston, Mass.

Without obligation to me, send along further information and price on the Sturtevant Portable Furnace Cleaner.

Name

Address

City..... State.....

1892



The ORIGINAL COLD RIVETED and WELDED FURNACE
POSITIVELY GAS AND SMOKE TIGHT

Our Answer:

CHEAP FURNACES AND CHEAP WORK
BRING YOU ONLY "GRIEF" AND A
CHEAP REPUTATION

"Dinkey" Undersize Radiators are all out of
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"SKIMMED MILK OFTEN
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ARMSTRONG COLD RIVETED
Guaranteed and WELDED **FURNACES**

Greatly Improved But No Advance in Price

Write Us Today for Our Proposition on
QUALITY Furnaces

THE THOMAS & ARMSTRONG CO.,
Dept. 501, London, Ohio

Please send me at once the Armstrong Fur-
nace Catalog and full details of your dealer
proposition.

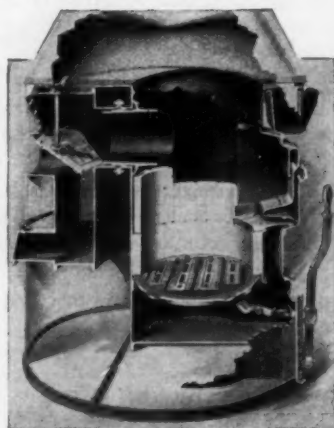
Name

Address

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Dept. 501 — LONDON, OHIO

The Williamson BOILER PLATE FURNACE



Guaranteed for 10 Years

oxygen directly over the flames, consuming all the heat ele-
ments in the fuel. Designed with the demands of the oil
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Many other attractive features further emphasize the su-
periority of the Williamson Boiler Plate Furnace. New and
interesting sales policy gladly submitted. Make sure of
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The Williamson Heater Co.
Cincinnati, Ohio

In adding the Boiler
Plate Furnace to its
line, this company is
merely extending into
the steel furnace field
the leadership which
it has attained in the
manufacture of cast
furnaces.

The Williamson Boil-
er Plate has exclusive
features which in-
stantly remove it from
the ordinary furnace
of this type.

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making it permanent-
ly gas and dust tight.
Dome made from cop-
per-bearing, blue-
annealed locomotive
firebox steel—radiator
made from Armco
iron. Double baffle in
radiator splits the hot
gases into two streams
so that all radiating
surface is fully util-
ized—an exclusive fea-
ture. Hot-blast smoke-
consumer in door and
special vents in fire-
brick lining supply hot



Highest
Quality
yet Com-
petitive
Priced

WE expect you
to think that
is unusual—it is
but not with the
Brillion.

Some of the fea-
tures that put the
Brillion ahead of
other furnaces can
be seen in this il-
lustration—but send
the coupon for our
catalog that tells
all about it.

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Send this
coupon
today

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FURNACE CO.
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Send me full details and your catalog
No. 60

Name

Address

Send this coupon for FREE sample of PECORA asbestos furnace cement

*The
favorite*



*for
Sixty Years*

MANUFACTURERS of furnaces by the hundreds and installers by the thousands have sworn by PECORA for years and years *because* PECORA has stood by them.

Now more than ever because the warm air heating industry is pushing ahead and because the public is more insistent on *clean* heat PECORA is the accepted favorite of the leaders in the industry.

PECORA leads because it does the job better.

When you use PECORA you will see—

that it stands up under high heat—

that it is odorless, an important fact to consider—

that it will not shrink in the joints—

that it makes a permanently tight joint—

that it is extremely easy to use—
that every bit of the can, the bottom as well as the top, is extra good quality.

that it is economical—goes further—lasts longer—

Perhaps you are new in the game—perhaps you have been using substitutes—perhaps you think PECORA costs more—

We want you to try PECORA Asbestos Furnace Cement and test out the points of superiority we and thousands of users claim for it.

We want you to know the correct manner of using PECORA to obtain the same satisfaction that manufacturers and installers have received for over sixty years.

Just sign and mail the handy coupon below for generous *free* sample and a copy of our booklet. Send it today—right now.

Pecora Paint Co.

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Established 1862
by Smith Bowen
Incorporated 1911



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4th and Erie
PHILADELPHIA,
PA.

Send us

FREE SAMPLE OF PECORA
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and copy of your instructive
booklet.

Name

Address



Buy Registers by Capacity Not by Size

IN these days of close figuring, "every little bit helps."

Because of the elimination of the horizontal cross bars and reduction of the thickness of the vertical bars, we have produced a Register that provides the maximum of air capacity with the minimum of obstruction.

By reason of this large air capacity, smaller sizes of Hart & Cooley Registers can be specified with the positive assurance of ample air capacity and a radical reduction in cost. Thereby insuring

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Hart & Cooley Registers are strong and rigid in construction and by reason of their classic design and artistic simplicity present a truly handsome appearance.

Just a little study of the H. & C. literature will greatly add to your reputation and profits. Write for it.

Note—The register shown is the famous H. & C. No. 170 series known (and used all over the country) for its efficiency and air capacity.

The Hart & Cooley Mfg. Co.

New Britain, Conn.

New York — Chicago — Philadelphia
Western Warehouse at Chicago



Each of these holes is a prospect right now for **FORCED AIR HEAT** *and* **VENTILATION**

RIGHT IN YOUR TOWN holes are now being dug that sooner or later will become cellars for homes, stores and other buildings.

Each one is an immediate prospect for you.

And you have the edge on any other system of heating because you give *more* for **LESS MONEY**. You are in the most enviable position in the world when you sell "Forced Air."

Contractors, builders, architects and owners are continually searching for ways to save money.

You can show them how to save money on Heating System Cost and get **MORE** for their investment. That is the strongest position you can possibly be in.

FORCED AIR is the only system that provides **GUARANTEED** heat and *efficient ventilation*.

Architects, contractors and builders need the most advanced and efficient heating system money can buy in order to sell their buildings. You can give it to them.

You give the home builder a heating and ventilating system that can't be duplicated by any other system at any price.

You can **GUARANTEE** satisfactory heating results regardless of winds, weather, exposure or length of pipe runs. You can guarantee the most healthful, invigorating, even heat delivered to every room.

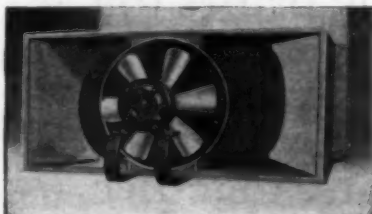
You can furnish the **ONLY SYSTEM** that provides **AIR IN MOTION**.

"Forced Air" Heat and Ventilation is secured through the **MILES AUTOMATIC FURNACE FAN** which provides:

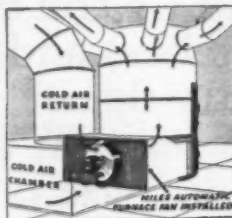
- (1) Four changes of air every hour. (2) A reserve supply of heat immediately available equal to double the capacity of the ordinary gravity system furnace. (3) Positive mechanical air pressure back of each register. (4) Cool air through registers in summer weather.

If you need further information, if you want help in laying out plans for Forced Air Heating jobs, write us.

Identify yourself *now* with this most advanced system of heating. Use the coupon.



Miles Automatic Furnace Fan
with Fan idle—louvers open



Showing general idea
of installation



Miles Automatic Furnace Fan
with louvers closed—fan in operation

THE WARM AIR FURNACE FAN COMPANY, 6521 Cedar Ave., Cleveland, Ohio

THE WARM AIR FURNACE FAN COMPANY, 6521 Cedar Avenue, Cleveland, Ohio

Kindly send me complete information about the Miles Automatic Furnace Fan.

Name _____

Address _____

MILES AUTOMATIC FURNACE FAN

Mention *AMERICAN ARTISAN* in your reply—Thank you!



**If you don't like to figure
your jobs according to the
STANDARD CODE
let us do it for you**

Just send us the blue prints (or good sketches) and our engineers will gladly figure a dependable estimate for you and promptly return your blue prints, together with the estimate and blue prints of the heating plan—all FREE to you and without any obligation.

F. MEYER & BRO. COMPANY
PEORIA, ILLINOIS



Warm-air Furnaces Now Made *CLEANEST!*

MAKE at least one Reed Furnace Filter installation—show your customers what it does in actual use—and the rest is easy! Show how it keeps dust and soot from coming up the registers, how it protects furnishings, safeguards health, cuts housekeeping work and makes the warm-air system cleaner than hot water and steam.

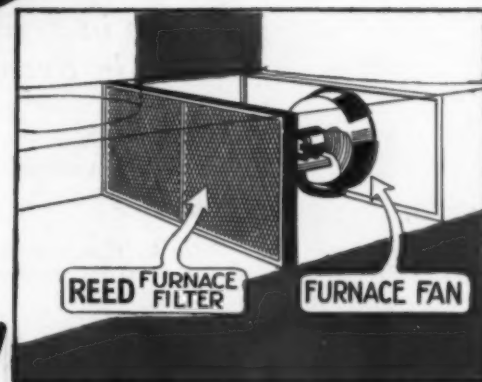
More Sales—Bigger Profits!

The Reed Furnace Filter now removes the one and only objection to the warm-air furnace—the greatest advance in the history of the industry. The best business-getting advertisement you can have. One installation invariably leads to another. Nothing like it ever offered. Be the first to sell in your town. Use the coupon—now!

REED AIR FILTER COMPANY, Incorporated
222 Central Avenue, LOUISVILLE, KENTUCKY
Offices in Principal Cities

The Reed Furnace Filter

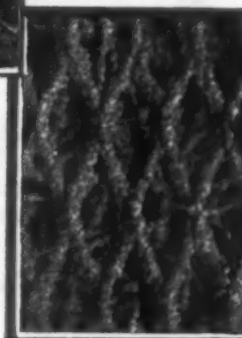
use
this



THE Reed Furnace Filter is built on exactly the same principle as the standard Reed Air Filter, thousands of which are now cleaning 120,000,000 cubic feet of air every minute of the day for prominent public buildings everywhere. Easily installed on both gravity and forced-air systems.



THESE photographs show the unusual cleaning efficiency of the Reed Furnace Filter. Left: Section of clean filter. Below: Same filter after several weeks' service. Additional quantities of dust and soot are inside the filter.



SHOW the striking evidence to your customers. Install at least one filter now and prepare for a bigger, more profitable business this fall. Every warm-air job in your town—old or new—is a real prospect!

REED AIR FILTER CO., Incorporated
222 Central Ave., Louisville, Ky.
Send at once complete information about the Reed Furnace Filter.

Name
Address
City



Linseal ASBESTOS FURNACE CEMENT

**Jobbers!
Salesmen!**

An excellent line
for you to sell.

Write us for
details.

Plastic, iron-grey cement
for furnaces, stoves, ranges
and heaters.

**Low in Price
Big in Results**

Odorless, hardens quick. Air
dries. Cannot shrink, crumble
or become porous.


Write for sample and prices.

The Buckeye Products Co.


MANUFACTURERS

7020 Carthage Ave.

Cincinnati, O.



BOLTS



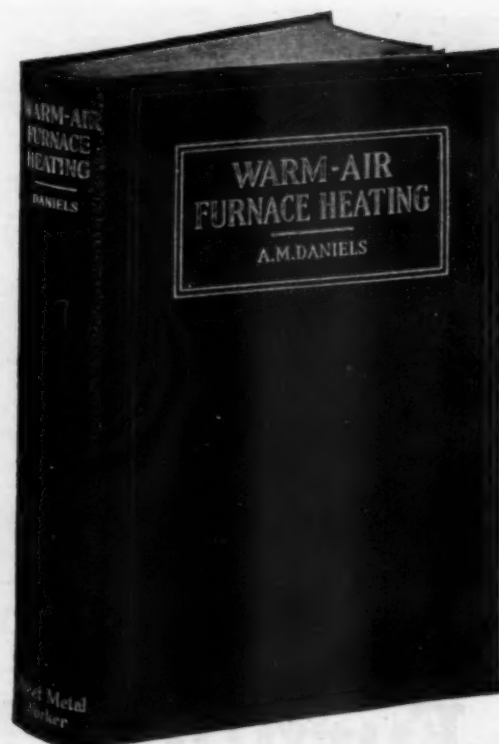
WE MANUFACTURE A COMPLETE
LINE OF BOLT PRODUCTS, INCLUD-
ING STOVE BOLTS, CARRIAGE BOLTS,
MACHINE BOLTS, LAG BOLTS, NUTS,
COTTER PINS, ETC. ALSO STOVE
RODS, SMALL RIVETS AND HINGE
PINS, CATALOG ON REQUEST.

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AND HEATERS**
THE CLEVELAND CASTINGS PATTERN COMPANY
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IN WOOD and IRON
VEDDER PATTERN WORKS ESTABLISHED 1835 TROY, N. Y.

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STOVE PATTERNS
QUINCY PATTERN COMPANY
QUINCY, ILLINOIS



**Here is the book they
are all talking about---**

Just off the Press—Now ready for you

IT IS the book that you have been asking for—a book on
Warm Air Furnace Heating that is UP-TO-DATE—a
book that covers every phase of the subject giving exact
data based on research work.

Written by A. M. Daniels.

Here is the book that will enable both the experienced fur-
nace man and the student to obtain a working knowledge of
up-to-date scientific warm air furnace heating.

It covers the subject completely.

Many tables are included and some big labor savers in cal-
culating pipe sizes—also many diagrams.

450 pages, 7x9 inches

*Bound in semi-flexible imitation leather--
Stamped in gold--*

PRICE \$5.00 POSTPAID

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AMERICAN ARTISAN,
620 So. Michigan Ave., Chicago, Ill.

Enclosed find \$5.00 for which send me WARM AIR FUR-
NACE HEATING by A. M. DANIELS.
10% discount allowed on book and renewal subscription
if ordered together.

Name

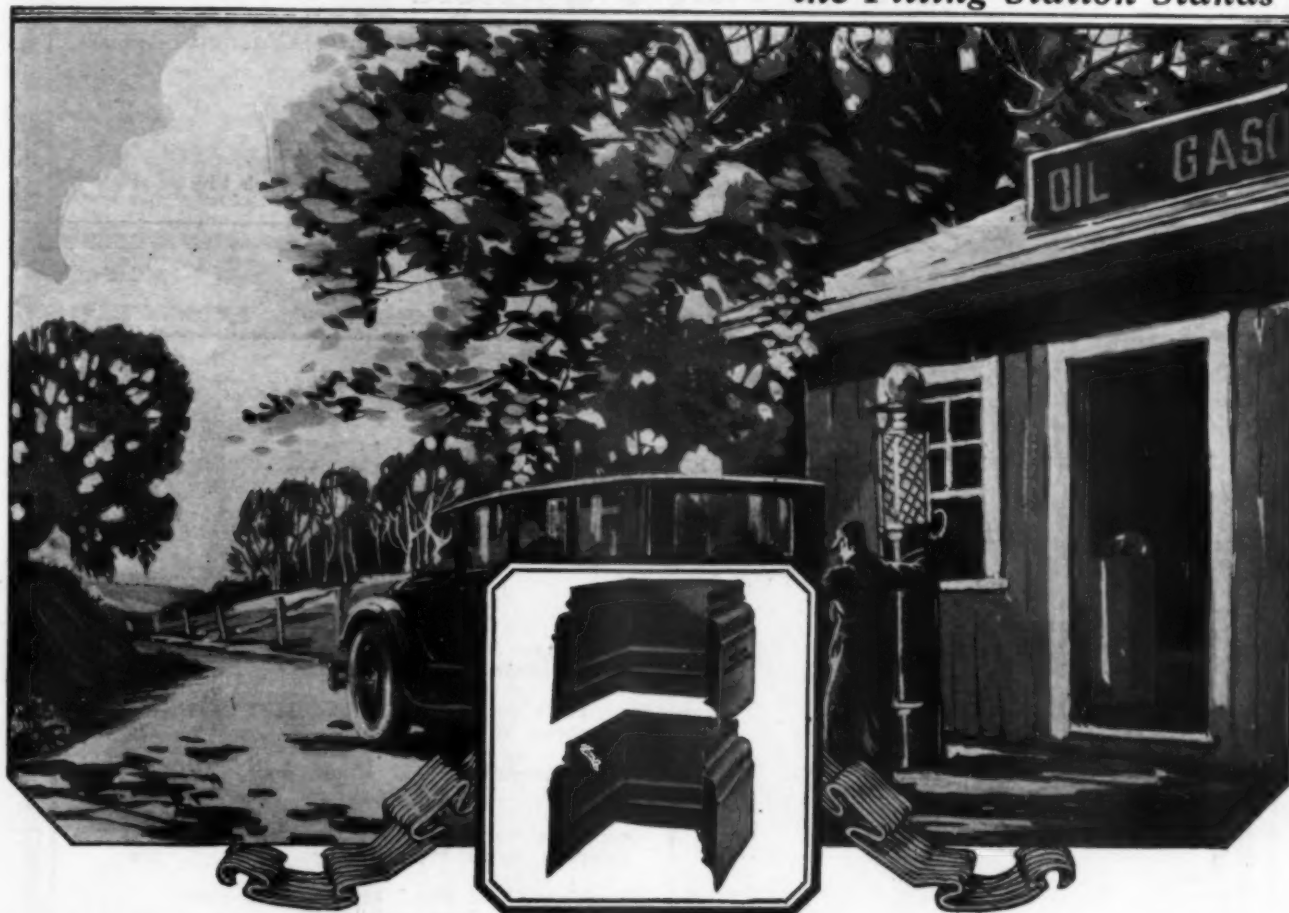
Street Number

Town State

Say you saw it in AMERICAN ARTISAN—Thank you!

Under the Spreading Chestnut Tree

the Filling Station Stands



A FEW years ago, it was the village blacksmith shop. Now it's a filling station. The blacksmith wouldn't get enough business today to make some good muscle, much less good money. Unless a man keeps up with them, Progress will walk off with Prosperity and leave him stranded.

Take your own business for example. Are you a tinner or a modern dealer in heating equipment? The tinner does the work, still makes his own fittings; the heating equipment dealer buys our fittings for less than he could make them, saves time and trouble on his installations and makes the money. It's the modern way; there's no

use being a blacksmith in a land of automobiles, or a tinner in a country where machinery does that part of the work for less time and money. Make modern methods your partner—not your competitor.

Lamneck Simplified Pipe and Fittings challenge comparison from any standpoint. They are designed by skilled engineers, made by expert labor and turned out on machinery especially designed for the purpose. They are the best that skill, experience and good material can make. Couple these factors with Lamneck 48-Hour Service and you have every reason for standardizing on the Lamneck

LAMNECK

SIMPLIFIED
PIPE AND
FITTINGS

line. Write for catalog or samples.

THE W. E. LAMNECK COMPANY, 416-432 Dublin Ave., COLUMBUS, OHIO

Western Representative: The Quick Furnace & Supply Co., Des Moines, Iowa

When writing mention AMERICAN ARTISAN—Thank you!

Published to serve
the
Warm Air Furnace,
Sheet Metal, Roofing
Stove and Hardware
Industries

Founded 1880

American Artisan and Hardware Record

Yearly Subscription
Price:
United States\$2.00
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Published EVERY SATURDAY at 620 South Michigan Avenue, Chicago

ADVERTISING AND EDITORIAL STAFF

Etta Cohn
J. F. Johnson

G. J. Duerr
Frank McElwain

Eastern Representatives: M. M. Dwinell, J. S. Lovingham, 156 5th Avenue, New York City

Vol. 93, No. 16.

CHICAGO, APRIL 16, 1927.

\$2.00 Per Year.

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AN ACHIEVEMENT

An explanatory note regarding service to readers of AMERICAN ARTISAN. This paper is now nearing the completion of a half century of service. For almost fifty years it has catered to the needs of the men in the industries which it represents. At no time during its long and successful career has AMERICAN ARTISAN been in a better position to render complete, adequate service to its readers than it is today. In addition to the matter contained in our regular weekly publication, we maintain Service Departments for the use of our readers. If you have a problem to solve, we courteously invite you to submit it to us for solution. In what better way can we learn of your problems than from you direct?

New Maximum Capacities offered By "SQUEEZED" Narrow Bars in JONES NATIONAL and NATIONAL REGISTERS

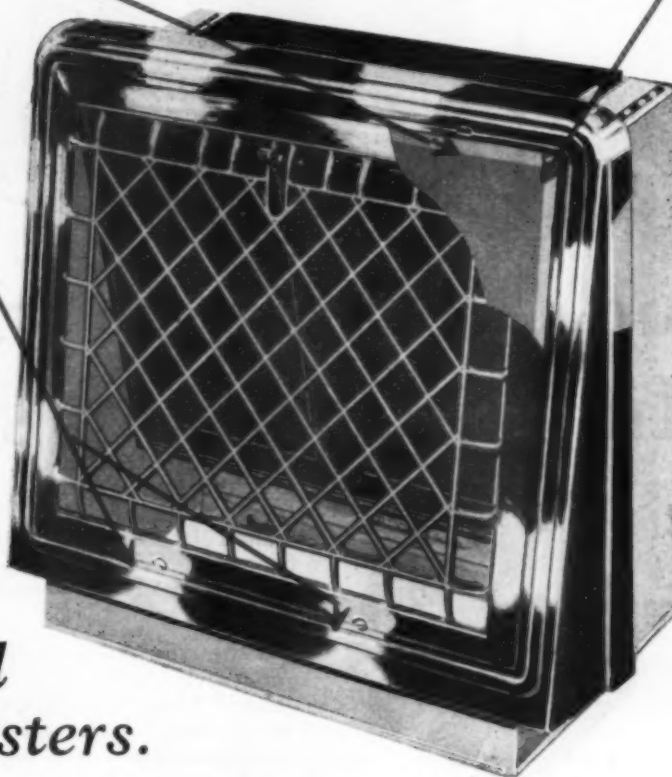
*A Patented
"Child-Proof"
Fastening Button*

Draws Center to the
Frame more tightly
than could be done
with Loose Bolts.

*If you believe
in the Standard
Code, you should
use Jones National
and National Registers.*

Center is
held in
place by
two Lugs
in here.

A patented SEALING
STRIP that SEALS the
JONES - NATIONAL
REGISTER to the box.



Let Us Explain **WHY.**

UNITED STATES REGISTER CO.
BATTLE CREEK, MICH.

BRANCHES: Minneapolis, Kansas City [and Albany
SUPPLY HOUSES---Everywhere Furnaces Are Installed



SELF CLEANING CARTON FURNACE

Home of Edwin Jensen,
Minneapolis, Minnesota,
warmed by an Inter-
national Carton.



In Your Client's Best Interests



THE RADIATOR

This is the Carton's SELF CLEANING RADIATOR in which soot or dust cannot accumulate, but must fall back on the fire.

Specifying the International Carton Self Cleaning Furnace, to be installed in accordance with the Standard Code, is surely working in your client's best interests—and in your own—

For the Carton will warm the home most efficiently—and for many years. There are Cartons still in active use which were installed sixty years ago.

ALWAYS FREE OF SOOT

Scientifically correct design and enduring construction are the reasons.

First, a radiator that is *always* free of soot means constantly maintained efficiency.

Then, a combustion dome or mixing

chamber that insures correct combustion.

And finally such details of sturdy, enduring construction as an ashpit and a feed chute without joints, preventing dust and gas leaks; a firepot that will not crack, cast in two sections with a deep cup joint; herringbone, triangular grates which mean a cleaner fire; and a double casing!

Dealers, heating engineers, write for Catalog 1818-A, describing the Carton in detail. We will also send a copy of the Standard Code.

International Heater Company
Utica, N. Y.

Cleveland Chicago Detroit
New York City Philadelphia
Nashua, N. H.

INTERNATIONAL

STEAM AND HOT WATER BOILERS, WARM AIR FURNACES AND ONEPIPE HEATERS

When writing mention AMERICAN ARTISAN—Thank you!



American Artisan and Hardware Record



Vol. 93.

CHICAGO, APRIL 16, 1927

No. 16.



Members, Associate Members and Furnace Salesmen Enjoying Banquet of National Warm Air Heating and Ventilating Association Held in the Hotel Cleveland, Cleveland, Ohio, Wednesday Evening, April 13

"Buck" Taylor Tells National Warm Air Meeting "What To Do About It"

Charles E. Hall Becomes President—Per Unit Assessment Reduced \$1—Fourth Edition of Code to Be Published

By GEORGE J. DUERR

MARKET good merchandise, meet changing conditions, know your sales and installation problems and their remedies, advertise your merchandise, assume responsibility of seeing that the warm air heating message is put across, know the facts about all of your installations and keep the ultimate goal always in sight—these and many other admonitions were what the warm air furnace manufacturers, salesmen and dealers had told them at the fourteenth annual convention of the National Warm Air Heating and Ventilating Association held at the Hotel Cleveland, Cleveland, Ohio, April 13 and 14.

It can be said without exaggeration that the meeting was one of the largest ever held by a warm air heating delegation. There were over 350 producers, installers and salesmen present, and the amount of information which these men carried to their several homes for the benefit of their own businesses was, in volume and quality, incalculable.

Annual Address of President E. B. Langenberg

The meeting was opened with the annual address of President E. B. Langenberg. President Langenberg's address, in full, follows:

Current and future problems find

the warm air heating industry assembled at its 14th annual meeting to discuss ways and means by which these problems can be met and overcome.

Since 1914, we have conducted seventeen (17) successful meetings and each meeting has brought to the industry a definite and positive objective for accomplishment that in the minds of the leaders of this industry would be of material benefit to every one connected with this business. As each objective has been discussed and plans formulated for the carrying out of the idea, succeeding meetings have heard reports of the thing accom-

plished or at least in a fair way to be completed. At not a single meeting has there been taken a step that could be considered as a backward move and one which might work an injury to us.

Reviewing briefly some of the major objectives of our various meetings, I find that one of the first and most important was the establishing of a connection with our present Research Laboratory at the University of Illinois, for the determination of fundamental principles, underlying the science of warm air heating.

The favorable decision to start this work has undoubtedly led to other major activities which we have undertaken. It was the one means for assuring cohesion in the membership that has made it possible for us to accomplish many great things. It has proven to be basically sound.

The second great objective was the establishing of the Joint Code Committee. This resulted in the close affiliation of four national organizations consisting of the Heating Engineers, Manufacturers, the Installers and Jobbers, to a common plan governing the installation of warm air heating systems.

Our third objective was the plan to build a Research Residence for the purpose of coordinating the work of the laboratory with the practical installation problem,

Our fourth objective was the establishing of the Educational Publicity Program which necessitated a large increase in our budget.

Our fifth objective was the creation of associate memberships which made it possible to broaden the scope of our work and to secure a specific interest in our program of accomplishment by a large group of installers.

Our sixth objective was the establishing of a rating formula on warm air furnaces.

Today, we have as our objective the sales problem.

In other words, we have analyzed our product, we have built an efficient organization in which each individual has his share of work, we have looked to production and have

standardized installation, our advertising policy has shaped itself with an eye to the future and at this meeting our sales policy is to be worked out and our plans for the future put in tangible form so as to secure without doubt the universal adoption of warm air heating in the home.

As the meeting progresses and the various subjects are presented, you will discover for yourselves some of the intricacies of the work of the various committees, and



E. B. Langenberg,
Retiring President

while the summaries are brief, I assure you that there has been a tremendous amount of personal sacrifice, personal expense and hours and days of time put into this work by the individuals personally connected with the work and this at no expense to the association.

During the past ten years there has been developing an amazing transition in warm air heating from inefficiency, inaccuracy, incompetency and guess, into an era of efficiency, accuracy and accomplishment which has routed the skeptics and rut travelers who lack vision, until today they are few and far between and we may at least feel confident that their power to injure the work of this association has become negligible and ineffective.

We are finding that interest is being secured by explanation. Op-

position soon crumbles when facts are known.

The National Warm Air Heating & Ventilating Association functions through a group of standing committees which have definite duties to perform and I shall give you a perspective of these committees so you will understand how the association operates and also get a general idea of the entire picture as it stands today.

Executive Committee

The executive committee attends to the big business of the organization—such things as policy, finances, budget, general plans, and as advisors to any committee. It consists of executives well qualified to handle the affairs of such a large organization as this, because of their capacities in the corporations which they represent. It acts as a senate to the house of committees. It conducts much routine business, which, if permitted to be handled on the floor of our open meetings, would waste time and result in useless debate. This committee approves of plans affecting the future of the organization. Membership on the executive committee carries with it responsibility of the highest order.

Research Advisory Committee

This committee has to do with our research work at the University of Illinois. It lays out the plans for the laboratory and in the research residence, after which the details for conducting the work are placed in the hands of the research staff for the necessary physical tests to be done. This committee keeps in touch with research work going on in other institutions and has personal contact with the laboratory of the heating engineers in Pittsburgh. It is their particular function to coordinate all research work in warm air heating, to prevent duplications and to secure, as far as possible, fundamental facts governing the science of warm air heating. The personnel of this committee has practically remained unchanged since its original appointment, although one or two additions have been necessary. This is really our

engineering committee, and on it rests the responsibility for being technically correct and practically conversant with our entire problem, both theoretical and practical.

Code Committee

The code committee has worked out in a most advantageous way in that the personnel of this committee are practically all members of the four national organizations that have representatives on the joint committee. Membership has changed very little since its inception, and this is as it should be, for when one realizes the tremendous field of thought that this committee has had to consider before submitting its opinion and recommendations, one can readily see that continual changes on the committee would work a tremendous hardship on the older members and the results would not be near as valuable as they have worked out under the present system. One of the requisites of membership on the joint code committee is that the candidate must have had at least one major operation.

Educational Publicity Committee

This committee is but two years old, but it has to do with one of the largest financial undertakings that this association has ever entered into. It has to supply speakers for meetings; it has to deliver the story of our research work to the public. It has to send our messages to the installer. It has to keep us all, individually, informed through our monthly bulletin. It has to originate new sales ideas. It has to act as a spur to the entire industry and must never let up for one minute in urging us on to better, more consistent and continual efforts. This committee has given us our trade mark, and our slogan, and because of its tremendous activities, we, in turn, allow it a major share of our budget.

Legislative Committee

This committee has to do with legislation affecting the installation of warm air furnaces. Its function is to make available to anyone, correct information on the Standard Code when the code is to be em-

bodied in a building ordinance. This committee also keeps in touch with all legislation affecting the industry and has a specific function to perform in the plans of this organization.

Simplification Committee

This committee works in conjunction with the Department of Commerce in their program of simplification and has already done considerable work on registers, pipe and fittings. Further work is contemplated in the simplification of sizes of warm air furnaces, as it is



Charles E. Hall,
Newly Elected President

felt that there is no need for a single line of furnaces to be indefinitely extended by graduations of one inch of two inches in grate diameters when possibly a uniform graduation of 4 inches might be desired. When this is accomplished, one can readily see the tremendous saving that will be made to the manufacturer.

Membership Committee

This committee has never functioned in a definite or intensive manner for the simple reason that it has not been necessary to make a concerted drive for membership in this organization. The work that we are doing and the results that we are obtaining have attracted to our

ranks the best thought and support in the country and will continue to do so as long as our policy remains a constructive one and we show progress in the industry.

I am going to introduce the chairman of each of these committees and men on the committees, as they are more than entitled to this recognition and you should know those who have constituted my cabinet during the past four years.

Chairman, executive committee, I. L. Jones, International Heater Company, Utica, New York.

Chairman, research advisory committee, C. M. Lyman, International Heater Company, Utica, New York.

Chairman, joint code committee, Prof. J. D. Hoffman, Purdue University, Lafayette, Indiana.

Chairman, educational publicity committee, H. T. Richardson, Richardson & Boynton Company, New York, New York.

Director of public relations, L. Wayne Army.

Chairman, legislative committee, A. P. Lamneck, W. E. Lamneck Company, Columbus, Ohio.

Chairman, simplification committee, R. C. Cook, Thatcher Company, Newark, New Jersey.

Chairman, membership committee, Roger Williams, Richardson & Boynton Company, New York, New York.

Our Objective of Today

The work of this association has now reached a step where it is high time that we commence to realize on the investment of time and money that has been so generously given to our work, and as our products are all merchandised through salesmen, it has been felt by the executives in the industry that this will be a fitting time to assemble as many salesmen in the industry as possible for a conference. The object of this conference is to establish a sales policy with particular reference to the activities we now conduct. The question is how are we going to use: First, the facts that have been developed in our research laboratory; second, the plans of our joint code committee, and,

third, follow up the activities of our educational publicity bureau. As near as I can figure, the members of this organization have, during the past 13 years, invested, in round numbers, in this association work about \$500,000, and for this sum we have received fundamental knowledge on warm air heating, a standard rule for installation, and an educational publicity campaign which is commencing to show results, and I have no hesitancy in saying that within another five years the returns on our investment should be far in excess of the sum invested.

If, for any reason, this work is not followed up and the message taken to the trade, then our investment in time and money is materially reduced, and we, as leaders of the industry, have lost our vision. Good judgment and common sense tell us that we cannot afford to lose on our investment. The fact that you are here is positive proof that the head of *your* company is in sympathy with our work and intends that you learn as much as you can in this two-day session that will make you a better and more proficient salesman in your respective territories.

To secure this return, it is necessary that the salesmen use the information available at every possible opportunity and that our story be carried through the dealer to the public. To do this, it is necessary that you be informed of the different phases of our work and how best to do it. We want you to feel that we are conscientious in our intentions and that we want the industry to prosper, for when the industry prospers, then each individual member shares in that prosperity. To do this requires the loyal and individual support of every salesman and dealer in the industry.

While you are here, do not hesitate to make use of the question box, and whether your question be wise or apparently irrelevant, at least give us an opportunity to answer any doubts in your mind, for at this meeting you will find as-

sembled the best thought on the subject of warm air heating. The success of the whole undertaking depends on *you* doing your part and not leaving it to your sales manager, your company or the association.

At the close of this meeting I will have served for four years as your president, and in all my experience in association work, I have never found a finer group of men to work with, and I am taking this opportunity of expressing my appreciation to the chairmen and their committees for their splendid coöperation.

With an organization such as we have, the possibilities in the future



J. L. Jones,
Chairman Executive Committee

are unlimited, but it will require constant attention, untiring effort and the undivided loyalty of our entire membership. Work has been laid out for years to come, and as success crowns our efforts, we will have the satisfaction of knowing that we have accomplished something worth while, and the public response to that effort will be spontaneous.

H. T. (Tom) Richardson, chairman of the publicity committee, reviewed the work of that committee. He told of the machinery within the organization that has already been set in motion to secure publicity for the association and for warm air heat. "This consists," he said, "of giving furnace installers information that can be used in the

selling of the heating plants." He reiterated the idea back of the code pledge cards; namely, that of getting the dealers to sign these pledges to the effect that the dealers will install all possible furnace jobs given them by the association according to code.

He also spoke of the increasing effort which the association is making to help the dealers. One of these is the advertising mats which he secured from the headquarters at Columbus.

Mr. Richardson also asked that the salesmen carry the story about the code to the dealers, and that the salesmen, if they are not getting the information, to write to Columbus for it.

Another dealer help which the association is working on is the new consumer book, which will soon be available and which will cover the heating field from A to Z.

"The committee," Mr. Richardson said, "has one complaint to make, the burden of which is that the members are not giving the association officials the coöperation the latter need for the efficient discharge of their duties. The hands of the committees are tied without the full coöperation of the members."

"Developments in the warm air heating industry since the December Urbana meeting," said L. Wayne Arny, director of public relations, continuing the review from where Mr. Richardson ceased, "have pointed to real encouragement. And here's the encouragement."

"According to government figures," said he, "there is a replacement market for warm air furnaces at the present time of 250 per unit of 10,000 population. Forty per cent of these homes are heated from a central heating plant, and 65 per cent of this 40 per cent are warm air jobs. Therefore, there is a potential annual replacement market of 650,000 warm air furnaces, but there are only 5,500 furnaces being manufactured annually. If that is not opportunity with capital letters, then what is?"

Mr. Arny continued with an ex-

position of the method employed in selecting the mediums in which the association advertising has been done—advertisements placed in house magazines. He said that for test purposes small advertisements will be used in new magazines in the near future. These advertisements will feature the Standard Code symbol and the return coupon.

At this point Mr. Army figuratively reached out into the assembled dealers with a clawed fist as he spoke of the requests he had made of the dealers for reports on what has happened where the association has sent the names of prospects to furnace dealers. The dealers are not giving these reports as they should. He said that of 342 inquiries that have been sent out, there had been only 35 return reports, and of this number, 30 sales were made.

Mr. Army said that the business of the Columbus office is to represent the industry, and that progress depends entirely upon getting the cooperation of the furnace dealers, manufacturers and the salesmen. But the merchandising of furnaces is the problem which is now facing the entire industry.

He related several experiences he had had with furnace dealers, salesmen and manufacturers, and drew the conclusion that there is little use in spending money on advertising until the men within the industry change their attitude toward it.

His experiences have led him to believe that many manufacturers do not know of the incompetence of many of their salesmen. He said that his attendance at an advertising conference in New York had led to the belief that it would be difficult to find an industry having a greater opportunity before it than the warm air heating industry, and yet the men in the industry, by their practice of dollar chasing and price cutting, are not building for the industry's best interests.

"The warm air heating," he said, "has not yet experienced the competition felt by other industries, but the men in it, by their attitude of indifference, are putting obstacles in their own way."

He closed with the admonition that the merchandising problem must be solved by getting the salesmen to cooperate with the manufacturer and the dealers.

Furnace Industry Rapidly Growing, Says Lamneck

"The warm air heating industry had a capital investment of \$46,000,000 in 1926," said Arthur P. Lamneck at the afternoon session, in commenting on the industry. After giving a few historical facts about the industry, Mr. Lamneck said that the trouble with the industry is that no one in it knows how to sell furnaces. He deplored the fact that only 200,000 new installa-



L. Wayne Army
Director Public Relations

tions had been made in 1926. "The reason for this is," said he, "that there are too many abuses in the industry. The manufacturers are not making the right kind of furnace. They have not yet fully grasped the idea of building heating plants, instead of castings to be sold at 5 or 6 cents a pound. Why learn the facts," he asked, "if these facts are not to aid in the manufacture of a scientifically correct heating plant?"

"Let's stop doing the things that are undermining the furnace business and that are driving business away, such as price cutting and other similar abominations. It is the manufacturer's job to check up on the installers to see where the former's products are going; to see that they are giving the service for

which they were designed and produced."

Mr. Lamneck was followed by Charles W. Mears, Counselor in Marketing, Cleveland, with an address on "The Neck of the Bottle." This address, which emphasized the fact that business has moved from manufacturing field to the retail field, is published in full on pages 128, 129 and 130, this issue.

L. W. Millis, Kansas City, gave an address on "What the Salesman Should Know." This address is likewise given on page 138 in this issue in full.

B. G. L. Dodge, Cleveland, followed Mr. Millis with an address on "Advertising and Sales," in which he pointed out that association advertising is increasing in amount daily. In this, warm air heating has not kept pace. Therefore, how can the heating industry expect to get very far when it is not doing anything to attract attention?

"The industries that are not organized," said he, "are the ones that are today showing the loss of profit. But organization alone does not insure success to an advertising campaign. The advertising must have a theme that attracts. This theme must then be given wide publicity, which can only be attained by associated effort. Around that theme must be built quality, and in this instance, the warm air furnace installation must be made a quality proposition."

H. S. Sharp had considerable to say about the responsibility of the salesmen. "In view of the fact," said he, "that the public is becoming more exacting each day, the dealer must have more knowledge of the performance of his heating plants. He must sell these heating plants on the basis of superior performance, and the information he must have to do that is the information which he must obtain from the furnace salesmen."

In a recent editorial in AMERICAN ARTISAN I urged all dealers and salesmen who could possibly do so to be present at the Cleveland meeting, because Buck Taylor was going to be present with

some "dope" on "What Are We Going to Do About It?"

Well, those who were present and heard what "Buck" had to say certainly got their ears full. "Buck" introduced some furnace rating figures which furnace makers were required to file with the city of Minneapolis and some manufacturers were made exceedingly uncomfortable.

This act was in line with his statement that some furnace men have not much faith in the warm air heating industry. He admonished everybody in the industry to put his own house in order. This must be done before any real progress can be made.

Speaking to the manufacturers, "Buck" beseeched them to "pack their own grips and go out onto the firing line of their own trade and investigate conditions first hand. They will not only be amazed at their own ignorance of conditions, but they will be in a far better position to remedy them; to help their dealers become better business men."

"Buck" acknowledged it to be a "sad commentary on the heating business when it becomes necessary to legislate good heating plants into existence."

"Good merchandising is the key to the whole problem," said "Buck." "And in the near future the industry will be headed by the sales managers."

In line with this policy of good merchandising "Buck" told of how his own firm had turned down an order for a car load of furnaces, because first hand investigation had revealed the fact that the installer's installations were found to be not up to par.

Turning to the salesmen, "Buck" said that there are two reasons why furnace salesmen are not making money; namely, 1. The proper tools have not been placed in their hands by the manufacturers. 2. The salesmen themselves have not used those tools to proper advantage. For this condition he placed the blame squarely upon the shoulders of the manufacturers in the first instance

and upon the salesmen themselves in the second.

In order to emphasize his point that salesmen could easily make more money by helping the dealer to sell more furnaces, "Buck" held up a bona fide \$1000.00 bill. He said that the sale of 20 extra furnaces would put that bill into the pocket of anyone who would get out and do the extra work.

This extra work interpolated meant employing the research data made available at the University of Illinois in an honest way to convince the home owner—the public



E. C. "Buck" Taylor, the Man Who Told Them What To Do About It

—of the superiority of the warm-air heating method.

He told the salesmen that the reason accounts were constantly being taken from them was that they—the salesmen—had failed to show their dealers how to make money by "preaching" the Standard Code. "Make better business men out of your dealers and you in turn will make more money out of the business," said he. "If after you have done that your employer refuses to give you a share in the larger business, then change your employer. Get down to the idea of selling warm air heat."

He admonished the dealers to discontinue harping about price cutting. "The trouble is not with your

competitor, it is with you," he said.

Well, when "Buck" got through, there wasn't a man in the room who did not feel that he had had his inmost secrets drawn from him and placed upon the table in plain view of God and everybody.

The banquet in the evening was well attended. The entertainment was well selected and the food very palatable.

The committee on arrangements consisted of C. N. Stollenmeyer, E. C. Fox, O. E. Moon, T. E. Henry, E. S. Moncrief, W. D. Cover and Charles Seelbach and these men deserve great credit for the manner in which the whole affair went off. President Langenberg was presented with a beautiful traveling bag in appreciation of his services.

Fourth Printing of Code Soon To Be Reality

The Thursday morning session was given over to committee reports and election of officers, the latter resulting as follows:

President, Charles E. Hall.
Vice President, Charles Seelbach.
Treasurer, W. P. Cooke.
Secretary, Allen W. Williams.

The executive committee was made up as follows: I. L. Jones, chairman; E. B. Langenberg, R. C. Cook, H. T. Richardson, C. E. Glessner, C. A. Olson.

The Standard Guarantee committee appointed by President Langenberg for the purpose of drafting a uniform guarantee consists of "Buck" Taylor, Roy Wasson and James Lions.

The secretary, Allen Williams, made his report as follows:

Report of Secretary Allen W. Williams

I respectfully submit the following, covering, undoubtedly, the most active year of the association's existence. The monthly bulletin of the association has, in a convenient manner for you, made it possible to omit details which it was formerly the custom to include in the report of your secretary.

Statistics—Our association is now depending on the biennial census of manufacturers as taken by the census bureau of the United

States Department of Commerce, and it has the merit of reasonable accuracy. The biennial census of manufacturers for 1925 shows the number of warm air furnaces of all types produced during that year as 505,162, valued at \$46,823,998. This does not include repair parts made and sold. The same report for 1923 gave the value of furnaces as \$43,168,883. I am told that the average price of warm air heaters was lower in 1925 than in 1923, so that the increase in units produced in 1925 over 1923 was undoubtedly larger than the above figures might indicate.

At our mid-year meeting last December, the desirability was suggested of more detail information as to how many furnaces there are installed in the different states, and similar data, and it was recommended that the census bureau should be urged and prevailed upon to secure such statistics when the next general census is taken. It is the intention to follow this recommendation and to thus in due time have it available.

It is a gratification to be able to say that the estimate made by our association as to the number of warm air furnaces produced annually in the United States has been 500,000. From this you will see that our guess was quite nearly correct and at the same time conservative.

So-called good authorities claim there will be a decline in the building of new homes during the present year. If this is true and the number of furnaces made and sold is to be increased, as we would like and expect, it is very evident that replacements must furnish our market this year. Fortunately, it is undoubtedly practical and possible to maintain and, in fact, to increase over previous years the number of units sold during 1927.

New Membership—You will be pleased to hear that during the past association year there have been added to the roll 93 associate members, and that the present number of associate members is 152. Six active or manufacturing member-

ships have been secured during the past 12 months. This is regarded as most encouraging.

Collection Bureau—Number of accounts received to date, 1,578.

Amount of accounts received to date, \$253,040.90.

Amount collected during the past association year, \$24,603.84.

Amount collected to date, \$138,308.10.

The use of our collection bureau is neither insisted upon nor unduly urged, but I would respectfully suggest the possible economy and convenience which members will find in using it in connection with their slow accounts.

List of Trade Names—For a



Allen W. Williams,
Secretary National Association

number of years I have been compiling for the association a list of trade names of warm air furnaces.

Finding it was of interest to the membership, and with the idea of correcting and making it more complete, it was published in the monthly bulletin commencing August, 1926. Many additions and changes have been furnished, and in the very near future it will be republished, complete under one cover, and distributed to you.

Research Activities—Our membership has been kept advised, through the monthly bulletin, the mid-year meeting and a special mimeographed report of July 1, 1926, as to the work being done and the progress being made, so that a

repetition here seems unnecessary.

The mid-year meeting last December in Urbana also afforded an opportunity for the members to revisit the warm air heating research house, and thus note by personal investigation what was being done in the house, and laboratory as well. You should be reminded that last fall Mr. J. F. Querequ, a part-time assistant in the engineering experiment station of the university, was assigned to work with Professor Day in our research activities. Under this arrangement we have had the benefit of his services without cost to the association. It should be added that he already possessed a good fundamental knowledge of the problems involved in the work.

Reporting for Mr. Fred W. Phelps and myself, as trustees for the warm air heating research house, it may be stated that the lot and building are in excellent condition, and only a small expenditure for minor improvements has been necessary during the past year. Some street paving in the neighborhood and some changes in the surroundings of our property has made it more desirable, if not more valuable.

The correspondence and requests for copies of research bulletins coming to my office would indicate a continued interest in our research warm air heating as carried along in cooperation with the University of Illinois. It is quite unnecessary to remind you of the continued loyalty and ability of the staff and the friendly and liberal encouragement of President Kinley and Dean Ketchum.

The Standard Code—You have perhaps felt at times that the secretary's office has been rather liberal in the distribution of free copies of the Standard Code. In spite of the fact that quantity orders are charged at cost, this year the demand for copies in small quantities and some that were furnished for distribution at national conventions and building expositions has totaled something over 8,000 copies. Our return has come in the part this distribution has played in posting peo-

ple in general as to the Standard Code, and making it, in reality, the recognized rule for the installation of gravity warm air furnaces in houses and smaller buildings. Since our last convention my office has constantly felt the need of an approved "Ordinance Form" based on the Standard Code.

Chimneys and Chimney Flues.

For some time the country-wide desire for better chimneys and flues has attracted much attention, and our association has been called upon repeatedly for information and coöperation in connection with this movement. With the assistance of the joint code committee and our president, I believe we have been able to render much helpful service. The Clay Products Association, in a letter received from them last August, refers to the subject of flues, and at the same time compliments our research work as follows: "There apparently exists very little data on the subject of temperatures in chimneys and flues. The only comprehensive data which has come to me is the data which has been obtained at Urbana." The National Board of Fire Underwriters has been rewriting its suggested "Ordinance Form Covering Chimneys and Flues," and found the subject is so close to the hearts of the manufacturers of warm air furnaces and all other heating appliances, makers of flue linings, builders of chimneys of special design and construction, architects and heating engineers, that it became a complicated undertaking. The fine thing about this work is the fact that all interested were simply desirous of gathering into the new form the best practice. During the past few months, several cities have adopted new codes covering chimney and flue construction. For instance, Columbus, Ohio, after considering the matter for four months, passed and put into effect a new code regulating the construction of this important part of any building. There was no opposition in the public hearing on the subject. Furnace and boiler manufacturers coöperated in an effort to secure better flues, and

even the coal dealers appeared, unsolicited, to support the measure, which, they stated, was as of vital importance to them as to the makers and installers of heating apparatus.

The Monthly Bulletin—A year ago the bulletin was increased from four to eight pages in size and seems to have served its purpose of keeping the membership regularly posted in short form as to our association matters and activities. Our mailing list at present includes not only our active or manufacturing members and our associate members, but also our private association mailing list of installers, etc., until the present circulation is approximately 8,000. If we could receive more items and papers for publication from our members, the bulletin would be more interesting. Contribution of short articles or news items is most cordially and urgently solicited by your secretary.

Our Publicity—I believe the secretary of the association gets a different view of this work and its results than either our members of the capable committee that is directing it. At any rate, may I say that there is most certainly a rousing public interest in warm air heating, and in a new way bringing the manufacturer in closer touch with the installer. The better class of dealers are coming to appreciate it and we are gradually impressing upon our good friends, the traveling salesmen, that in their own interest they should take advantage of the help it can be to them. It should, and can, be one of the most important means at our command to raise the number of annual installations of warm air furnaces to 1,000,000, and I believe that should be our goal.

Accounting for the Association—Advantage has been taken of every cash discount on bills against the association, and all obligations paid promptly. The growth of our activities and the added number and variety of accounts it has been necessary to keep has required enlargement of our system of accounting, but with Treasurer Cooke's assistance, the necessary

changes have been made in my office as occasion required.

Freight Matters—The freight container bureau of the American Railway Association recently issued their Bulletin No. 8, "Crates for Cast-Iron Furnaces." This is being given consideration, and while its recommendations are not compulsory, it bids fair to be an excellent guide to follow in the shipment of these goods. Thousands of the crate labels prepared in coöperation with the bureau have been printed and furnished to our manufacturing members. They have proved popular and assist in the safe arrival of goods.

Coöperation With Other Trade Associations—While it has been possible each year to comment upon and thank other kindred trade associations for their coöperation with our society, this year the harmony and coöperation have been particularly marked. I have found it has added much to our ability to do things.

Trade Press Assistance—For fear our membership may not understand and appreciate the help my office has received from the trade press, I desire to gratefully acknowledge it at this time and to also remind you of the fine work they are doing in our industry.

Garage Heating—Last fall the National Fire Prevention Association and the National Board of Fire Underwriters selected a committee to prepare a new building code covering the construction of garages. A section of the same is naturally to be devoted to heating. I attended the first hearing of the committee as a representative of our association and found that in the tentative draft no provision was made for the use of warm air in public or semi-public garages. This was probably due to an oversight, and it was not difficult to convince the committee that many garages were successfully and safely heated with warm air; further, that many states already recognize our system and have provided proper regulations covering the installation of the same. Warm air now has a place on the sub-committee cover-

ing the subject of heating, and our good friend, Mr. A. M. Daniels, of Washington, District of Columbia, is our able representative.

Literature on Warm Air Heating—May I call your attention to the fact that our association has undoubtedly been the means of making many valuable additions to the previously somewhat limited books available on modern warm air heating? The bulletins of the University of Illinois, covering our cooperative research with them, have supplied a much needed reference library, and the first of this year the publication, "Warm Air Furnace Heating," by Mr. A. M. Daniels, furnishes a comprehensive volume which is not technical. It bids fair to become a standard authority on warm air furnace heating.

Conclusion—The Association has enjoyed a busy, harmonious and prosperous year. Everyone has been so willing to help that it has been a pleasure to serve you and I thank the officers and members for their patience, courtesy and advice.

The report of the joint Code committee, made by Professor J. D. Hoffman, was very interesting. It was learned that two meetings had been held since the Urbana meeting, one at Columbus and one at Cleveland, at which the question of the publication of the fourth edition of the Code was threshed out. It was determined that some minor changes were necessary for the sake of further simplification, but which do not change the precepts of the Code at all. There are no changes in the technical facts.

The original 13 notes will be reduced to 11, eliminating notes 7 and 10. Note 11 will be reduced.

In article 3 a general statement on the basis of the work will follow the rules and an example will be inserted.

In Section 9, Article 3, on the method of determining the size of the furnace, the rule will be in two parts. The basis of the working rule and the formula will be stated and three examples will be given, namely, 1. An example on a ratio of 20 to 1. 2. Example on a great-

er ratio than 20 to 1. 3. Example on a ratio less than 20 to 1.

Following considerable discussion on the necessity of having the wording made easily understood, a motion was passed as amended that these changes be made and that the Code be sent to the printers for publication of the fourth edition. This action also changes the order from that of the Code to that of an ordinance. Thus comes into existence a Uniform Standard Code Ordinance issued by the National Warm Air Heating and Ventilating Association.

Judge Watson, association legal counsellor, spoke of the association machinery for collecting delinquent accounts of manufacturers and urged all members to employ this service. "New methods have speeded up the service," he said.

C. M. Lyman, Research Advisory committee, in reporting, emphasized the urgent need for education of dealers.

He reported further that the new circular No. 15, dealing with furnace tests in zero weather at the research residence will be available in a few days. Requests for copies should be sent to the secretary's office and not to the University of Illinois.

The report also contained a recommendation that the association continue the contract with the University of Illinois.

I. L. Jones, chairman of the Executive committee, made the report for that committee. The recommendations were that the official measurer of furnaces be paid at the rate of \$20 per day or fraction. That the assessment for the association year be made at the rate of \$2.00 per unit, a reduction of \$1.00 per unit.

That the research expense assessment be made at the rate of \$3.00, instead of \$3.50.

That the mid-year meeting be held at Urbana, Illinois, and the next annual meeting be held in Chicago.

There were four active members and fifty-eight associate members voted into the association.

Professor Day Reviews Circular No. 15

The entire afternoon of Thursday was given over to the research review conducted by Professors V. S. Day and A. P. Kratz of the University of Illinois.

Professor Day opened the session by reviewing the contents of the University of Illinois Circular No. 15, which is now available to the trade and which deals with the performance of the warm air heating installation in the Research Residence at Urbana during one period of zero weather. At the time these tests were made the installation had three cold air returns and the information divulged by the tests is of great value to warm air furnace installers.

The university, said Professor Day, is now ready to begin running this circular through the presses as soon as the association secretary informs them of the number he wants. If you are desirous of obtaining the circular, send your requisition to Allen W. Williams, 174 E. Long avenue, Columbus, Ohio.

A review was had of the entire research work that has been carried on on warm air heating. A set of lantern slides were used in the lecture, supplemented by explanatory remarks by Professors Kratz and Day.

Too much emphasis cannot be laid on this Circular No. 15. It contains information with which the installer can go to his public with the prestige of the university back of him.

Thus ended one of the greatest warm air heating conventions that has ever been held in point of accomplishment and attendance.

The ball is rolling toward better things in the warm air heating industry. Dealers, producers and salesmen are awakening to the call of bigger opportunity.

The coming years will prove that the men responsible for the introduction of the present program of research and education were endowed with wonderful foresight and sagacity. They are the geniuses.

Expanding the Neck of the Bottle in the Warm Air Heating Industry*

Where Does the Equipment You Manufacture Stand in Public Esteem

By CHARLES W. MEARS, Counselor in Marketing, Cleveland

THE other day I happened to read two pieces of literature dated centuries apart. They had nothing in common, apparently, and yet they supplied a contrast—a contrast emphasizing how times have changed.

One of the things I read was the annual report of General Motors. This report told that in 1926 General Motors paid salaries and wages to no less than 129,538 employees. Big as that figure is, I have yet to see any comment on it in the newspapers—evidently it was not big enough to print.

The other and more ancient piece of literature was Plutarch's Life of Alexander the Great, King of Macedon, a war-like ruler some 300 years before Christ, a ruler who made himself the world's champion by defeating and dethroning that much-feared monarch of the East, Darius, King of Persia.

Books of history are full of Alexander's world-upsetting triumph, and yet the amazing part of it is that Alexander's victorious army numbered less than 50,000 men—less than half of General Motor's payroll.

As compared to General Motors of 1926, Alexander the Great, Alexander the world-beater of 300 B.C., was a small-fry operator.

I cite these figures as evidence that times have changed. For, whereas once less than 50,000 could overturn the world, today 129,538 men are merely a staff of peaceful employees who do not receive a paragraph in the newspaper.

Times have changed. Multitudes have dwindled.

*Address delivered before the delegates to the convention of the National Warm Air Heating and Ventilating Association held at Cleveland, April 13 and 14.

I need not have gone back to Alexander to illustrate my point, for times have changed overwhelmingly since the Great War ended 8½ years ago.

Battle Moved to Retailing Field

Times have changed notably in this:

The business battle has moved over from the manufacturing field to the retailing field. Before the war, the big object was to make more goods and better goods and to make them at lower cost. Today the object is at any cost to command the retail markets, to win consumers.

Coincident with this shift of battle came a marked increase in business failures.

In the five years from 1921 to 1925 inclusive, business-failure liabilities were the heaviest in the whole range of our American business history.

This result might look as though business houses were now fighting a fearful battle of mutual extermination, all of them grasping for trade that simply doesn't exist. But that is the fact.

The fact is that America was never so wealthy as it was at the very time when failures were most alarming. In 1922 for instance our per capita wealth was \$1,950 as against the 1900 figure of \$1,165—an increase of nearly 70%. Our wealth and buying power keep on increasing—going up all the time.

In the same five years when failures were so heavy some—many—businesses were reporting the largest sales and heaviest net profits in their history.

What these records do signify then is that the battle for the consumers' dollar grows increasingly more intense. The fight is hotter. The battle field is broader, the guns

are bigger, the shifts faster and the tactics are more bitterly scientific. Compared to anything heretofore known in business operations, today's struggle for trade is mastodonic beyond all precedent.

Times have changed.

Probably in all times business has had its problems. It took some brains to keep ahead of the sheriff—always. And yet there isn't a man in this group but can recall times when sales came easier than they come today.

Manufacturers Dare Not Stagnate

There were times when the owners of plants gave no particular thought to expansion: They were satisfied to stay as they were. But that, too, has changed. We dare not stagnate. Standing still is equivalent to commercial death—we progress or we perish. Highly ambitious men set the business pace and we must hurry along to keep step with them or we find ourselves wiped out. The only thing in business that is automatic today is failure.

What I am saying applies not only to your business, but to every other business as well. I am acquainted with no exceptions. Even the billion dollar Ford industry knows how it feels to be pinched. Ford rested on his oars too long. Business stopped coming to him on a silver platter. Richest of all business men, Henry Ford is beginning to realize that he must do something to hold his own.

Food is a human necessity and the business of supplying food should be substantial, yet the grocery chains have harassed both wholesalers and retailers and are now eating up each other.

Never before was so much oil or gasoline sold as is sold today to our millions of motor car users and yet

to stay alive oil companies are forced everywhere to establish filling stations; and even the tremendous Standard Oil Company condescends to be courteous and obliging.

The Victor phonograph people lived on the fat of the land and felt content. Yet almost overnight came the radio and knocked Victor complacency and profits into fragments.

Traffic Congestion Cuts Down Department Store Trade

Great department stores see traffic congestion cutting down their trade. Women don't go down town to shop as they used to. Mail order sales fall off and right away Sears-Roebuck and Montgomery Ward establish retail stores around the country—thereby giving department stores further and unexpected competition.

Not so long ago women's hats had two seasons—spring and fall. Today new styles in women's hats are sprung every two weeks: is it any wonder the department store owner can't sleep nights?

Have times changed? Ask the manufacturer who used to make big money by producing veiling, or muslin underwear, or fancy combs, or women's high shoes. When women put on short skirts and took off long hair, bang—every one of these businesses fell paralyzed. One mere whim of fashion and the profits stopped; the business itself stopped—sunk without leaving more than a trace. Today veils are worn only at weddings, high shoes only for orthopedic reasons and muslin underwear almost never. How would you like to be in any such business as these?

Times change, and sometimes they change with overwhelming speed and no warning.

Installment payments are not a new business method by any means and yet in the last five years the tremendous auto industry has sustained itself by time payments almost exclusively. All dealers have been compelled to adopt the time payment plan.

And where do we go from here?

Who knows?

As a matter of fact nobody knows. But this much is plain, nobody can hope to stay in business long if he takes things easy like a contented cow and sticks to methods that the industrial and commercial pace-makers have already thrown into the discard.

The other day I heard a Sherwin-Williams paint salesman go through his canvass to sell a dealer, and I was amazed at its thoroughness and its water-tight precision. What chance, I asked myself, has any other paint maker who doesn't do anything about that—who works haphazardly and without minute preparedness? We can't win battles with pitchforks when the other fellow is using 60 mile Berthas.

And to all this you know the answer as well as I do. We must keep our methods up to date.

You have already made a good start by forming and maintaining this association, by adopting a standard code and by engaging in scientific research work. These show your awareness to the situation and your willingness to be keenly alive in your business activities.

Still More to Be Done

And yet there is still more to be done.

You are selling a human necessity and the price advantage is greatly in your favor. I wonder if you realize how tremendous a force that is.

The commonest objection in the world is this: "It costs too much." And against this objection you have the fact that yours is the lowest priced and most economical central heating equipment on the face of the earth. Nobody can beat it.

Nevertheless I am told that dealers who sell your equipment are all the time whittling their pencils to underbid each other until there is little or no profit left. Cheap installation. If that is true, then that's a fault you've got to remedy. How silly it is to do business on any such basis—which is the shortest of all roads to bankruptcy.

Unless you can influence your dealers to get profitable prices, you

will have to revamp your whole system of distribution. Certainly you cannot afford to depend for retail sales upon weak-kneed and unbusiness-like men who are headed for failure. The automobile business has solved that problem: It demands of its dealers certain essential qualifications and you can do that, too.

Dealer Must Be Alive to Get Sales Today

Dealers can make sales, but they can also spoil sales. And if your dealer isn't making the sale, you can be very sure that some other dealer, some smarter dealer, is.

Nowadays there isn't much hope for any dealer who isn't alive, enthusiastic, energetic and onto his job.

Fundamentally you've got a sound and necessary business. Homes need comforting heat and you can and do supply it at most attractive prices. Moreover you have no lack of prospects—people who can afford to buy. The market is so big that there is plenty of room for all of you who are producers. No need to worry about that. The thing that is a matter for concern is this: *Where does the equipment you manufacture stand in public esteem?*

Does the public know and believe that for houses of certain sizes the warm air furnace is *not simply* acceptable, but *is instead* the *only* kind that anybody should ever install?

If the people don't know this they've got to be told; they'll never discover it for themselves.

People today spend their money where they are most urgently and persistently invited to spend it.

Read What P. T. Barnum Said 75 Years Ago

Selling is first of all telling.

Tell the people what is best for their own welfare and tell them often enough and sincerely enough and they'll end by doing what you want them to do.

Barnum knew that, and it was the secret of his big success.

Hear what Barnum had to say 75 years ago and see if he didn't forecast business methods of 1927:

"We all depend upon the public for our support and those who deal

with the public must be careful that their goods are valuable; that they are genuine and give satisfaction. When you have an article which you know will please your customers and give them their money's worth, then let the facts be known that you have got it. Be sure to advertise in some shape or other, because it is evident that if a man has ever so good an article for sale and nobody knows it, it will bring him no return."

You've got for sale a valuable article that thousands upon thousands need. Tell them about it. And especially must you tell them because you stand now in a somewhat disadvantageous position. I mean this:

1. Warm air is older than steam, hot water and vapor, hence it is easy for people to believe that these are improvements on warm air.

2. Because steam, hot water and vapor came later than warm air, the manufacturers of this expensive apparatus had to educate the public to believe them better, and during part of that educational period you did not vigorously present your side of the case.

3. Your prices are lower, hence it is easy to believe that these others, since they cost more, must be better.

4. Because there is more money in it for the dealer who installs steam, hot water or vapor, dealers naturally put heavier selling efforts behind this more costly apparatus, and do what they can to belittle warm air.

In consequence of these conditions, your product has occupied an apologetic position. It was something people could take as a last resort if they didn't have the money to buy steam, hot water or vapor.

Nobody likes to be put in that situation. People like to feel that they are buying the best for their needs, *not* the second best.

Therefore you acted wisely when your association began to advertise the merits of warm air heating. By advertising you started to raise your product in public esteem: You made it more and more desirable. From the apologetic position of second

best you started to raise warm air to first place for certain types of houses. You threw off the negative attitude and assumed the positive—and that, the positive, is the only selling attitude that counts. Hence you have been moving in the right direction.

Furnaces Will Not and Cannot Sell Themselves

Unfortunately, however, your furnaces do not sell themselves, nor do they install themselves. Before anybody can put in one of your furnaces, he is forced to do business with a dealer. The dealer is the neck of your bottle.

And what has the dealer done? Has he gone out vigorously after prospects and cashed in on your advertising or has he waited for prospects to seek him out and hand orders to him?

And when a prospect wants to know more about warm air heating, can and does the dealer speak with that enthusiasm and authority which makes the prospect eager to buy?

Is the dealer so well informed and so thoroughly sold on warm air heating that he puts the prospect's mind at ease—that he makes the prospect feel: "Here is a man who knows what he is talking about. I can depend upon him to install exactly what I need"?

That sort of confidence in the dealer, in the dealer's salesman, cashes in on your manufacturing skill and on your advertising. It is the indispensable minimum in today's selling of any article that runs into dollars.

You have already taken steps to educate the dealer. You are moving in the right direction. But you must keep on and do a thorough job of it. Your success hinges on the dealer's enthusiasm and efficiency.

You are fortunate in doing this work through your association, for a work of this sort can be accomplished through a well managed association ever so much better and more cheaply than it can be accomplished by an individual house.

This is the day of big business and fierce competition. Your interests are common. You are all in

the same boat. You know your needs. The business is big enough to produce profits for all of your companies. Persist then in the way you have started, remembering that in union there is strength and that when one's cause is just nothing can defeat the *irresistible momentum of an organized idea*.

And there, gentlemen, is your keynote: The irresistible moment of an organized idea.

Meyer Furnace Holds Sales Conference at Cleveland April 15

The Meyer Furnace Company, Peoria, Illinois, taking full advantage of the educational value of the Cleveland convention of the National Warm Air Heating & Ventilating Association, invited eighteen of their salesmen to the meeting.

A sales conference was held at Cleveland by this company which lasted all day Friday, April 15.

Those present of the Meyer Furnace Company were: Roy C. Walker, F. E. Mehrings, J. F. Flavell, L. M. Baugh, J. B. Sauer, W. E. McFarland, H. W. Hauman, H. L. Jackson, F. D. Simpson, E. C. Acker, A. K. Bredwick, C. K. Semple, E. A. Reed, B. A. Morrison, A. J. Stauff, R. B. Warren, G. Rank and E. H. Demmler.

Sixteen Firms Receive Honorable Mention for Illinois Window Displays

The following is a list of sheet metal firms who received honorable mention in the Illinois Sheet Metal Auxiliary window display contest: Enoch Purnell, Oak Park, Ill.

Jno. Reif, S. M. Wks., Chicago.
Boysen's Htg. & S. M., Chicago.
Soedler Hardware Co., Peru.
North Avenue S. M. Wks., Chicago
B. Petersen, 3750 W. North Ave.,
G. & S. Stove & Furn. Co., Chicago
McKay Brothers, Evanston.
W. F. Wahler, 3717 Elston Ave.,
Accurate S. M. Wks., Chicago.
Round Oak Heating Co., Chicago.
Geo. E. Roesch Hdwe. Co., Aurora.
A. Hardten Co., Ottawa, Ill.
Round Oak Htg. Co., Evanston, Ill.
Lauth Brothers, Chicago.
McCoy & Son, East Moline, Ill.

The Editor's Page

Seeking Business in an Intelligent Manner

PROPER ventilation is almost as important as proper heating. Inasmuch as the sheet metal contractor is vitally interested in legislation that will aid or hinder his business activities, he should likewise be concerned about legislation that will create more business for him in the way of ventilating installations.

The only logical way that a sheet metal contractor can set about increasing his services is to make those services take in an ever wider scope. Every contractor, of course, runs up against legal restrictions that must be removed or got around in some way before he can proceed with the expanding of his own business.

Thinking Well of the Sheet Metal Industry

THERE are heard from time to time rumblings of discontent with the sheet metal contracting business emanating from the ranks of sheet metal contractors. The gist of these complaints is always the same—that the industry offers few opportunities to the ambitious and is made up of men of exceedingly low calibre.

In defense of the sheet metal industry and the opportunities it contains for the full exercise of superior talents, let it be said that no man can possibly make more than a very poor living out of a legitimate business of which he does not think well. In attempting to do so he handicaps himself at the very outset.

The true gauge of an industry's respectability is its necessity to the public welfare. If the service or products of an industry are necessary to the public welfare, why should anyone now in that industry or contemplating entering it think anything but well of it?

The sheet metal industry is necessary to the public welfare. It has been a necessity for hundreds of years and will go on being a necessity for hundreds of years to come.

Some very comfortable fortunes have been culled from the sheet metal industry. It counts among its ranks men of the highest calibre, who proudly proclaim that in the industry they have found ample exercise of all of their talents, faculties and business acumen. I heard one of these men, now nearing the seventy mark, exclaim just the other day: "I love the sheet metal industry. I love the smell of resin and the heating soldering iron. Nothing gives me so much pleasure as does a trip into the sheet metal shop, to stand by the old bench and experience the feel of the soldering iron handle."

No, if there is anything wrong with the sheet metal industry at all, it is to be found in the attitude of the men that are in it, rather than with the industry itself. That person is no man who has not the gumption to think

well of the industry from which he is making his livelihood and who refuses, because of a superiority complex, to give that industry the best that he has at all times.

A Few Pointers on Your Job and the Other Fellow's

"IF I had my life to live over again and could make another choice of the business to enter, I should never select the sheet metal or warm air heating field from which to make my living and fortune." We have all heard men make that remark, men not only in the sheet metal and warm air heating business, but men in almost every other line of business.

The fundamental basis of business success or any other kind of success is the ability and consuming desire to render a service better than anyone else can give it. Without that, no man or business can enjoy success to the fullest possible extent.

Suppose, for instance, that you as a sheet metal or warm air heating contractor are discontented with your lot. Business in your line is not what you think it should be. You aren't getting the volume you think you should and you have difficulty in getting your money for the work that you do take. In short, the fellows in other lines seem to be getting all the "gravy." You are seriously considering leaving the business you are now in and going to some other line.

Well, suppose you do go into some other line, where the pastures appear to be greener than in your own. You are, say, nearing or have already arrived at the age of forty. If you go into some other line, you will have to spend four or five years of hard study and application in your new line before you can attain to the level at which you are in your present business. Then, in order to advance, you will have to continue the same concentrated study and application.

In order to save time, therefore, why not make the most of the opportunities that the business you are now in have to offer you? Why not start in where you are now and apply yourself diligently to the work before you? After all, good hard and thoughtful application to the task at hand is the only way success can be attained, regardless of the kind of business you are in.

The sheet metal and warm air heating business offer just as many if not more opportunities for the employment of ability and talent than does almost any other industry that you can name. If you have a hankering or any idea that you could make a bigger success in some other business, it may be possible that you made the wrong selection when you started out, but before deciding to give up your present occupation, be sure that you have analyzed the matter thoroughly to find out whether or not you are not suffering from a bad case of pure, unadulterated laziness.

Random Notes and Sketches

By Sidney Arnold

"The essence of humor is sensibility; warm, tender fellow-feeling with all forms of existence."—Carlyle.

And as a parting shot did you hear of the two charming young women who attended the show together, but were unable to get adjoining seats at a Milwaukee theatre? One C. Y. W., thinking to arrange a trade of seats, asked her male neighbor, Arthur R. Podolskie, if he were alone, and the brute replied: "Fly away, Birdie, I got the whole damn family with me."

* * *

"How kind of you," said the sweet young thing with a cosmetic blush, "to bring me these lovely flowers. They are so beautiful and fresh. I think there is some dew on them yet."

"Yes," said Ed Stahler of the G. & S. Stove and Furnace Company, with a great deal of embarrassment, "but I'm going to pay it off tomorrow."

* * *

R. S. (Tommy) Thompson, who travels for the Mount Vernon Furnace Company, received a remittance from his firm while on the road recently and went to the leading bank of the town to get the check cashed. The paying teller referred "Tommy" to the president of the bank, who was formerly a judge in that district. After making every effort to establish his identity, such as his personal cards, letters, name in his coat, etc., Tommy was finally refused the cash by the president on the score that he was not satisfied with the identification.

In the president of the bank Tommy recognized the judge who had tried a murder case when he was in the town on a previous occasion. "Pardon me, sir," said Tommy, "but do you remember such and such a murder case a few years ago?" "Yes," said the president, "it was tried before me; I was judge of this district then."

"Well," said the traveling man, "in my opinion you sentenced the prisoner on evidence much less cir-

cumstantial than I have just produced."

"That may be," replied the president, "but you see in this business we have to be very careful when paying money."

* * *

A group of furnace men at a recent convention were discussing evolution and the origin of man (?). One of the party remained silent, when a companion turned to him and demanded his opinion. "I ain't goin' to say," replied Homer Brundage, Kalamazoo Blow Pipe Co., Kalamazoo, Mich. "I remember as how Bill Busch, Detroit, and cerned."

"But what conclusion did you arrive at?" said Frank Daly, Lansing.

"Well, we didn't arrive at any conclusion; Bill arrived at the hospital an' I at the police station."

* * *

The late Vice-President Marshall of the United States declared what this country needed most was a good five cent cigar. A good five cent cigar may be one of the requirements of modern civilization, but F. N. Stevens of Chicago, representative of the W. E. Lamneck Company, thinks that what we need most is a collapsible flivver which can be folded up and tucked along side a fire plug when one wants to do some calling. Of course Mr. Stevens sells so many Lamneck clothes dryers that the cost of smoking troubles him very little.

* * *

Two gentlemen stopped on the street to talk to each other, one wearing a large diamond tie pin.

"Isaac," said the other, "dot is a fine diamond you have. Vare you get it?"

"Well," explained Isaac, "my brother he died and left \$450 for a stone. Dis is de stone."

* * *

I surely sympathize with that skeptic who jumped off the Wool-

worth building the other day to test his rubber heels and kept bouncing up and down until they had to shoot him to keep him from starving to death. The identity of the man was not revealed and as I had not heard of any of the boys being in New York recently, I do not think our industries were officially represented.

* * *

Persistence

Nothing in the world will take the place of persistence.

Talent will not: nothing is more common than unsuccessful men of talent.

Genius will not; unrewarded genius is almost a proverb.

Education will not: the world is full of educated men who are failures.

Determination alone is omnipotent. "Press On" has solved and always will solve the problem of the human race.

* * *

New Disease

R. Jeske, Milwaukee—"Say Tolg, I heard you were sick last week."

C. C. Tolg, Waukesha—"Yes, I was. I had the new disease called the 'clothing sickness.'"

R. Jeske—"What on earth is that?"

C. C. Tolg—"Well, I had a coat on my tongue and my breath came in short pants."

* * *

Harvey Manny, Robinson Furnace Co.—"You're looking well these days."

Bill Laffin—"Yes, sir; I'm living on the fat of the land."

Harvey Manny—"What happened—your rich uncle die?"

Bill Laffin—"Not at all; I'm running a gymnasium for women."

* * *

The New York World's Rome bureau reports that when the King of Italy was signing some state papers, he dropped his handkerchief. Mussolini picked it up and said, "I trust Your Majesty will allow me to keep this as a souvenir."

"I fear not," answered the king. "It is the one thing left which you let me put my nose into."

L. F. Graves Should Base Business Expense on Productive Labor

Because of Wide Difference of Relation of Material to Labor in Sheet Metal Business

By SHEET METAL DAN

IN THE matter of L. F. Graves' problem on Overhead, or Business Expense, appearing in *AMERICAN ARTISAN* for March 26, 1927, I should not care to go so far as to say that he is wrong in his method, as I have very little knowledge of his business. As I see it, however, if he were manufacturing, where the proportion of labor to material is always the same, then I should say that his method is O. K.

On the other hand, we in the sheet metal business believe that the system adopted by the National Association of Sheet Metal Contractors some years ago, namely, that of basing the *business expense on productive labor*, is the simplest and safest method for the sheet metal contractor to use, because of the wide difference in the relation of material to labor.

A gentleman from St. Louis, who spoke at the Atlanta convention, Mr. Schmidt, I believe was his name, based his business expense on labor hours. Either method, and there may be others, is correct. But the important thing is to see that some method is used that will work out successfully in the business to which it is applied.

The method adopted by the National Association of Sheet Metal Contractors is clearly explained in a folder entitled "Overhead—What Is It?" issued by the Sheet Metal Contractors' Association of Pennsylvania. The first paragraph of this pamphlet covers what may be justly termed Overhead. Then a list of items which may be considered to cover this expense, followed by several problems which are self-explanatory. The really important one is the proportion of gross business to payroll, 3 to 1.

Problem Nos. 1, 2 and 3 show

examples where there is a wide difference between the proportion of material to payroll, and every man in the sheet metal business has many jobs in each class. And the overhead is taken care of; whereas, if jobs where no material or very little were furnished and overhead were based on gross business, a



Sheet Metal Dan

great loss in volume would result and a consequent reduction in amount obtained to cover overhead.

Overhead briefly stated means all money paid out in connection with your business for which you cannot make a direct charge to your customers and usually includes the following items:

Rent.
Insurance — Fire, Liability, Accident, Compensation.
Taxes—City, County, State and Federal.
Advertising.
Stationery, Printing and Postage.
Telephone and Telegraph.
Light, Heat and Power.
Shop Supplies.
Lost Time of Mechanic—Time paid for but not chargeable to any work.
Allowance—Reductions made in order to get a settlement.
Car Fare—When not charged on the work.
Freight—When not added to cost of material.
Hauling—When a wagon or truck is owned by the establishment, this would include all the cost of operation, such as drivers' wages, feed, repairs, shoe-

ing, license, rent of stable, depreciation, etc.

Trade and Daily Papers.

Dues in Trade.

Organization, etc.

Contributions, Donations, Charities, etc.

Bad Debts.

Legal Expenses, Collections, Etc.

Depreciation—Tools, equipment, etc.

Salaries—Money paid to those for whose services a charge is not made; for instance: book-keepers, stenographers, porters, errand boys, managers and owners where the latter does not work on a job, and where he works part time, the money he receives for the time he does not work, should be charged to this item.

There may be local conditions where it may be necessary to add or deduct from the above items, but as a rule, the above list is quite comprehensive. The item of interest on investment has not been included. Money is invested in business with the expectation of gain at a greater percentage than could be realized by using the funds otherwise, and there seems to be no logical reason why the business should be surcharged with the interest on the investment.

Having established the items of expense that go to make up the overhead of the business, let us now consider the data and problems, it being understood, of course, that the problems are based on the former.

Data.

Gross business for year	\$30,000.00
Overhead or business expense for year	6,000.00
Productive pay-roll for year...	10,000.00
Percentage of Overhead to Productive pay-roll for year....	60%
Percentage of Overhead to Gross Business for year....	20%
Portion of Gross Business to Productive pay-roll for year.	3 to 1
Profit on Gross Business for year	25%

May attention be called to this data as follows:

The proportions are from an actual business.

The amounts as given are used because the figures are easy to handle.

Any others can be used, provided they are in like proportion.

Notice especially the sixth item of the data, the proportion of Gross Business to Productive Pay-roll; 3 to 1. It is the deciding factor in establishing that the practical manner of estimating Overhead is by a percentage on the Productive Payroll.

Problems.

We quote, herewith, three problems: No. 1, where no material is furnished by the sheet metal contractor. No. 2, where the material furnished is at the average proportion; and No. 3, where the mate-

rial supplied is considerably above the average proportion.

No. 1. \$000.00—Material furnished.
50.00—Labor.
30.00—Overhead, 60% of Labor.
26.67—Profit, 25% of \$106.67.

\$106.67

No. 2. \$ 32.50—Galv. Iron, etc.
50.00—Labor.
30.00—Overhead, 60% of Labor.
37.50—Profit. 25% of \$150.00.

\$150.00

No. 3. \$195.00—Sheet Copper, etc.
50.00—Labor.
30.00—Overhead, 60% of Labor.
91.67—Profit. 25% of \$366.67.

\$366.67

An analysis of these problems will show that in a \$10,000.00 Pay-roll, there are 200 jobs or estimates at \$50.00 per job.

Problem No. 1 would show a gross business for the year of \$21,334.00

Problem No. 2 would show a gross business for the year of 30,000.00

Problem No. 3 would show a gross business for the year of 73,334.00

If overhead is counted on gross business at the rate of the data, we get on

\$21,334.00 @ 20%.....\$4,266.80

30,000.00 @ 20%..... 6,000.00

73,334.00 @ 20%.....14,666.80

Whereas if overhead is counted by a percentage on the Productive Pay-roll we would get on 200 Jobs @ \$50.00 worth of labor, per job, \$10,000.00 @ 60%, \$6,000.00.

From the analysis is it not clear that in Problem No. 1, the proportion of gross business to productive pay-roll is 2% to 1.

Problem No. 2, the proportion is 3 to 1.

Problem No. 3, the proportion is 7½ to 1.

Is it not true, therefore that in every general sheet metal business the year's estimates or gross business will be made up of charges or items with just as great a variation as to the volume of business done with a given amount of labor as is shown in the problems, and this can be verified by the examination of the books of any such establishment, and is it not equally true, that any method of calculating overhead must be flexible enough to take care of this variation, if it is to be correct and of practical value, and, finally, is it not also true, that calculating overhead by a percentage on the productive pay-roll, does adjust itself to this variation and is correct and practical?

The net result to the thoughtful man who will study this matter, and it will have to be studied to be understood, will be to make plain to him that to base overhead on a percentage of the gross business, will cause him to have too much on some estimates for his business expense and too little on others. By way of example let it show in this manner.

Problem No. 1. Gross business for year, \$21,334.00 @ 20% \$4,266.80, showing a shortage of \$1,733.20.

Problem No. 2. Gross business for the year, \$30,000.00, @ 20%, \$6,000.00. Correct amount being at the average of 3 to 1.

Problem No. 3. Gross business for the year, \$73,334.00, @ 20%, \$14,666.80, showing an excess of \$8,666.80.

The National Association at the Milwaukee Convention adopted for sheet metal shops the application of Overhead

Expense to the productive payroll and the forgoing problems are taken from a report of the National Overhead Expense Committee at this Convention. This, we believe, to be the clearest analysis of this very important question available and a careful study of the above problems, should enable anyone to apply same to their own business. Its proper application means the difference between success and failure.

This pamphlet also contains a very interesting story of a father's experience in business with his son, telling how nearly he came to accusing his son falsely. This story follows:

A sheet metal man, well along in years, a fine fellow, had taken his son in busi-

Sheet Metal Dan, of the Distributors' and Salesmen's Auxiliary to the Pennsylvania Sheet Metal Contractors' Association, thought the problem of L. F. Graves, Manager of the Dawsey Sheet Metal Works, Dothan, Alabama, appearing in the March 26th issue of AMERICAN ARTISAN, of so great importance that he took it upon himself to set Mr. Graves right on the subject of business expense and its proper distribution.

Readers of AMERICAN ARTISAN who have had similar questions in their minds can read what Sheet Metal Dan told Mr. Graves in the accompanying article with a great deal of profit and enlightenment to themselves.—The Editor.

ness with him. I met him coming out of the bank, and he said: "I have paid off an \$800.00 mortgage on my house."

I said: "You ought to feel good about that."

He replied: "I don't; it's every cent I made last year, and I thought I had made three or four thousand dollars."

I asked him: "What's wrong?" as I saw that he was excited. We went into the bank and sat down.

"What's wrong?" he said. "That is what I am worried about. You know what's worrying me? I have been doing so much work; I have been doing every job of it at a profit; every job that I did came out better than I figured, and I have \$800.00. You know my boy is keeping the books and I am worried."

I said to him: "Let's talk this over a little while. How much business did you do last year; on what kind of a basis did you figure your work?"

He told me that he did \$15,000.00 worth of business, most of it jobbing for hotels and restaurants. He had very little competition, he would figure how

much material it would take, guess about how many hours of labor, and add 15% to it, and on that he put 20% or 25% profit. He made more profit on every job than he figured.

I told him that we could not work on that basis. If we did \$15,000.00 worth of business on the basis of our figures, we should have \$1,500.00 profit. We would figure a \$15,000.00 contract on the basis of \$10,000.00 for labor and material, and we would have to get \$15,000.00 in order to give us a \$1,500.00 profit.

He said: "You are talking about Overhead; if I had the expense you have I could not live for a day. With all your machinery, shops, automobiles, superintendents and girls around the office, I would go crazy. No wonder you have a lot of expense."

I told him we needed all these things, and in proportion he needed them. We began to figure his expense. We put down shop rent, expense of horse and wagon. The driver, he did not think, ought to go into expense, but was finally convinced when shown that the driver's time on the team was not charged to the job. We went through the entire list, I put down his figures, but in most cases cut them.

I said: "How much salary do you get?"

"Nothing; I take that out of the profits." I told him that we would be willing to give him \$100.00 a month if he wanted to work for us, he would measure up the work he was doing for himself, but we must put the price on it. He said he was then taking home \$20.00 or \$30.00 a week, as he needed it, without having kept any particular account of it. I told him we had an item of lost accounts, and asked if he had any such thing. "No, sir; I collect my bills." After a little conversation, he admitted that he sometimes deducted two or three dollars to secure a settlement, but did not consider these amounted to much. He also remembered that he did a little over \$400 on one contract, for which he did not get a cent. We put down \$475.00 for deductions and losses during the year.

Then I said: "Do you do any such thing as making good on work that you did last week, it proved unsatisfactory, your man had to spend half a day on it, and when you asked the fellow to pay for that additional time, he thought you ought to do it for nothing, and you did it?"

He replied: "Oh, I never send a bill for anything like that."

I pointed out to him that it took a definite amount of time to do this. I told him his men were coming in an hour or two before quitting time and couldn't get at other work. They put in their time at something. We must put that in expense. When we were all through, I asked him if there was anything that ought not to be there, if any item was too high. The total amounted to \$3,870.00. I said: "Your overhead expense is larger than ours, isn't it?" He said: "It looks like it." I said: "If we had put in that \$400.00 that you lost on the apartment house, it would leave you just about the \$800.00 that you paid on your mortgage."

We were in the bank for an hour and a half. I am telling you exactly what happened. The old man stood there with tears running down his cheeks, and said: "George, I wouldn't have missed this afternoon for half the world, because I know my boy has treated me honestly—I know he is all right. I always thought

so, but I haven't slept for a week. I have taken those books home with me, worked over them, slept over them, and couldn't find anything. All the time I didn't even have the nerve to say to the boy: 'What have you done with the money?' and I am awfully glad I didn't ask him."

Let us take care of this education among our people at home. Let us assume the burden of spreading the education, of taking care of our expense accounts with the fellows in our home town who need our help.

New men are entering the sheet metal business daily, and the subject of overhead or business expense is always a live one and so important to the success of any business that anything covering the subject is important and good reading.

Best Place to Increase Profits Is Through Your Overhead*

Underbidding Competitor Is Telling Customer First Price Too High

By J. J. DINGLE, C. P. A., Ottawa, Illinois

YOU gentlemen have come from all parts of the state to meet the fellow members of your association and discuss with them the problems and the joys of your work. By attending conventions, you evidence your interest in your industry, your desire to improve your own business and to do your part in bettering conditions generally.

Being sheet metal contractors, you are able to speak the language of your fellows. The special terms of your industry are understood by all of you. You will hear discussions on various features of your industry, and will understand them. They are common to all in your industry. There is one subject which is common to all of you, but on which I venture to say you are not prepared to have brought up for a general discussion. Many of you are not prepared for it, and you do not have a standard by which to gauge results. That problem is the matter of your costs.

You men are competitors with each other. You are bidding against each other for business, and the cus-

In one case in my own experience, I called on a sheet metal firm about sixty miles from Pittsburgh. The subject of overhead came up and this man feared they would be liable to prosecution for profiteering if they used it. The further discussion of the subject kept me with him for the rest of the afternoon, or for several hours.

It is surprising how few of the smaller shops have any knowledge of the cost of running their business and when shown that they have a business expense, will hardly believe it.

tomer considers price. I presume every man in this audience has his own ideas as to estimating work, and keeps his business records somewhat according to his own ideas.

If you are one of those who happen to know your costs a little better than your competitor, you are fortunate, in that your bid will be such that you will be able to make a fair profit, if you land the job. You are unfortunate though, in being in competition with a man who does not know his costs. That competitor is just as likely to put in a bid that is far below the actual cost of doing the work, as he is to figure too high.

Suppose he, through lack of knowledge of his costs, underbids you. He secures the job. That is not the worst feature of the transaction. By underbidding you, he has, in effect, said to the customer that your price is too high—that you are asking too great a profit—and the customer believes just that. The customer does not take into consideration the fact that probably the price is too low.

Your competitor has offered to do the job for that amount and the customer naturally feels that it can

be done for that. An ignorant competitor is a dangerous competitor. If he does not know his costs he can upset the public's idea as to the value of the work.

Every business man is entitled to a fair profit, the public is willing to pay that profit, but they do not want to be robbed. The public can only judge by the prices quoted. They do not know the actual costs of the job.

Analyzes Sales Dollar

You are in business for the purpose of making money and serving your community. Let me reverse this and say you are in business for the purpose of serving your community, and, incidentally, making money.

If you serve your public well, you will make money. You purchase materials, hire men, incur various expenses, and with these you produce the things your customers want. Quite frequently you must place a price on these articles before the order is received.

Even when you price the work after it has been completed, you must consider the different elements entering into the completed work. Your sales dollar, then, is composed of Material, Direct Labor, Rent, Shop Expense, Delivery Expense, and many other expenses, together with an element of profit, or loss. The keeping of records in such a way as to enable you to determine the cost of these elements entering into your completed work is called "Cost Finding."

The other day Joe Pearson handed me a trade journal, and called my attention to an article where some writer was giving his method of pricing a job. The procedure was to make a list of all material required for the work, and price it. The next step was to estimate the amount of labor required, and price that. Then, to take care of the overhead, this writer added 100 per cent of his labor.

To the sum of these three elements, material, direct labor and overhead, he added a percentage for his profit. You will say that is the correct way to figure the cost of a

*Address of J. J. Dingle delivered before the Convention of Illinois Sheet Metal Contractors held at Ottawa, Illinois.

job. There is nothing wrong with the procedure, but that article is a dangerous one. That writer did not go into detail as to how he determined the fact that 100 per cent of his direct labor would cover his overhead. Worse still, he did not call attention to the fact that while his overhead might be 100 per cent of direct labor, it did not follow that the overhead of all the readers of that article would be the same. I venture the remark that many men, on reading that article, will think that they, too, must add 100 per cent of their direct labor to cover overhead. I will give you some figures later to illustrate the wide variations of overhead.

Three Principal Elements in Product

Your industry is that of manufacturing. The cost finding falls naturally into three groups. There are three principal elements used in your product: Material, direct labor and overhead.

If you keep your records in such a way as to permit of segregation of your material from your shop supplies, your direct or productive labor from indirect or non-productive labor, and a good classification of your expenses, you can get some very interesting information from your business.

The handling of the materials and direct labor involves no serious complications. That is the easiest part of your record keeping. Your biggest problem is that of overhead. These expenses which we call overhead are more or less fixed. Your rent, office salaries, insurance, taxes, and many other expenses are about the same each month, regardless of the amount of business done. Only materials and direct labor increase in direct relation to the volume of business done. Let us look into this matter of determining your overhead.

First, what method is best suited to the industry. Is a percentage of the direct labor more suited than a percentage of the labor and material? That is a point on which I would like to hear some discussion from the floor.

The loading of overhead against direct labor was the plan used in the article mentioned above. Let me give you an application of that plan. Suppose that during 1926 your direct labor amounted to \$15,000, and your overhead expenses amounted to \$12,000. Then your overhead for 1926 was 80 per cent of your direct labor. Now, we are in 1927 and you must figure a big job. Suppose your overhead for 1926 was 80 per cent, does that prove that it will be 80 per cent for 1927?

Suppose you are right now figuring on a job that will cost, say, \$25,000 and that job, if you get it, will greatly increase your business for 1927 over the total for 1926. You will use a great deal more than \$15,000 of direct labor, but your rent, office expense, insurance, taxes, and other expenses will not increase in direct proportion to your direct labor.

If you use 80 per cent of your direct labor as a basis for overhead, and at the close of 1927 you find that you have used \$25,000.00 of direct labor, 80 per cent of this would amount to \$20,000.00. Your overhead for 1926 was \$12,000—it would not exceed for 1927 say \$15,000.00, and yet you have added to your material and labor cost the sum of \$20,000. You have figured \$5,000 too much overhead.

That is all right if you were able to get it, and you have made \$5,000 more profit than you figured on. Let's reverse these conditions and have business drop off from the preceding year. You would find that you had understated your overhead and would lose money. Your failure to include a proper amount for overhead would be unfortunate.

You would not think of quoting on a job that called for some materials which were more or less special without first securing quotations on that material. You would want that quotation to stand open until the bids were opened, to protect yourself on the material. You would know the cost of your labor, and your only difficulty on that point would be the estimating of the amount of labor required.

You do, however, place, an arbitrary figure in your bid to cover your overhead. You are just guessing, and in nine times out of ten, you have no foundation for your guess. So far as I know, your industry has produced no figures to show an approximate overhead figure for the average business.

There are among you, I presume, men who have very complete records pertaining to their businesses. You who have such records find them very valuable aids in the conduct of your business. They enable you to intelligently price your sales. But suppose two or three of you men who have these complete records were to get together for a discussion of the matter of overhead.

Does the information obtained from your books cover the same points covered by the information taken from the books of the other fellows? Do you classify your accounts in the same general manner as is used by the others? When you speak of your overhead, do you know that the other fellows understand you to mean "Overhead" as they know it? I am afraid not.

You may segregate your payroll into direct labor, indirect labor and office. The other fellows may use different methods. Assume that one of them uses only two labor accounts, one for the men and another for the office. Then your overhead is increased by the indirect labor which he calls direct labor. You are unable to compare those figures for the reason they are not comparative.

Each individual business should, then, keep complete records pertaining to the operations of that business. These are necessary in order that intelligent pricing of sales may be done. You must know your overhead before you can properly charge it against the work.

Big Benefits in Comparisons

There is a further consideration to be given to the matter of records. Let's assume that you fellows will admit that your records are poorly kept and do not provide the information required. Suppose you de-

cide to improve this condition right away.

Each business would go about this matter in an independent way and get the information each proprietor thought he ought to have. There would be great benefits derived from such a course. There is a way, however, that still greater benefits may be had. Suppose this Association were to take up the matter of Comparative Cost Accounts and spend some time in looking into the matter, finally coming back to the membership with a plan whereby the members of the Association could all use practically the same plan of account keeping?

Then, from these standard accounts, could be developed figures

the close of each month certain figures from their books.

These figures were worked into operating statements and returned to the dealers. All operating statements were on the same plan. Percentages were figured for the cost of the goods sold in the several departments, and for the total sales. Expenses were grouped under suitable departmental headings, and these were also stated in percentage, as well as dollars. Then, from these individual operating reports, there was compiled a comparative statement, showing only the percentages, separate figures for each dealer, and these figures were identified by code letters.

Each dealer was able to locate his

Or at least the customer, in conjunction with the competitor. The only point that was entirely subject to control by the dealer was his overhead. By increasing his sales, he found that he could automatically lower his overhead content in sales, thereby increasing his profit.

That same general condition prevails in your industry, as well as in all other industries.

The best place to increase your profits is through your overhead. You cannot altogether control the price for which you sell your goods. Your competitor has a hand in that. You cannot of your own accord reduce the price you pay for your materials; or the wages you pay to your workmen. But you can have a free hand in the matter of your overhead, and a careful study of that end of your business will produce more profit than either of the other elements entering into your product.

Reducing Price Cutting to Terms of Simple Arithmetic

On a 25 per cent margin of profit a cut of 5 per cent requires 18 per cent more volume; 10 per cent requires 50 per cent more volume; 12½ per cent requires 75 per cent more volume; 15 per cent requires 112½ per cent more volume to produce the same profit.

In other words, if you cut your price 15 per cent on a \$100 sale, it is necessary to sell \$112.50 worth of additional business before you can make the profit of \$25 to which the original sale entitles you.

Palmer W. Holmes Resigns Position With Lalance & Grosjean Mfg. Co.

Palmer W. Holmes, for 30 years with Lalance and Grosjean Manufacturing Company, has resigned his position. He was Chicago manager for 26 years.

It is Mr. Holmes' intention to become a manufacturers' representative.

Mr. Holmes has not definitely decided upon his location, although it will be Chicago, but his home address is 711 Junior Terrace.

Comparative Operating Figures

	Being an Average of Twelve Month of January	Separate Businesses Month of April	Month of September	Year of 1925
Total Sales	1926 \$100.00	1926 \$100.00	1926 \$100.00	1925 \$100.00
Cost of Sales	73.29	71.60	71.55	72.91
Gross Profit	\$26.71	\$ 28.40	\$ 28.45	\$ 27.09
Expenses—				
Yarding	\$ 5.82	\$ 3.21	\$ 2.16	\$ 2.48
Delivery	7.79	4.41	3.13	3.57
Office Selling	33.55	7.20	4.43	5.03
Administrative	23.05	9.52	7.47	6.40
Total Expense	\$ 70.21	\$ 24.34	\$ 17.19	\$ 17.48
Operating Profit	\$ 43.50	\$ 4.06	\$ 11.26	\$ 9.61

on a comparative basis, which, when placed on a percentage, would enable each individual business to see how it compares with the average of the industry. Through comparative accounts, you will reap the greatest benefits.

Some two years ago, I was approached by representatives of a group of retail lumber dealers, with the request that we undertake the work of putting in comparative cost accounts in the several lumber yards. The work was started at the beginning of 1925, and we have just closed the second year of this work. At the start, we found some lumber yards with first class records, others with but fair records, and in several instances we found practically no records entitled to be called as such. After installing records such as would permit of the keeping of accounts according to a uniform plan, these dealers sent in to my office at

figures in the comparative statement by the code letter, but he did not know the others. He, then was able to see his own results as compared with the results of the other members of his association, and this comparative statement of operating conditions was found to be quite valuable. Each dealer found where he was weak, as compared with the other dealers, and set about to remedy the condition.

One of the greatest things brought out by these comparative records was this simple fact. These dealers, being in the same industry, were paying practically the same price for their materials.

They were selling at practically the same price. They were not selling at practically the same price by reason of their own desire but from the fact that they had to meet competition. The customer really fixed the price.

What the Salesman Should Know About Warm Air Heating*

Foundation Upon Which to Build Is Knowledge of Theory of Heat

By L. W. MILLIS

I UNDERSTAND that the subject, "What the Salesman Should Know," refers, for the purposes of this meeting:

First, to the activities of the National Warm Air Heating and Ventilating Association during recent years.

The humblest furnace installer can now, if he will, engineer all his jobs successfully. The association also is expending much time and money in acquainting the public with that fact, as well as placing inquiries received from such publicity directly in the hands of a furnace installer near the inquirer. The salesmen should know those facts.

The second part of the subject refers to his technical knowledge of the warm air furnace, and of those things so closely allied that it is impossible to separate them.

Of course, there must be a solid foundation. That foundation is a knowledge of the theory of heat. Knowledge of what heat is, how it is transmitted from one thing to another and from one place to another, is the furnace salesman's foundation. He cannot rise very high without it.

Assuming such a foundation, he should know the capacity of his furnace. It is equally vital that he should be able to get at first hand a fair estimate of the actual capacity of other furnaces. There has never been a time when it was not possible to rate a furnace, but I think you will all agree that in the past few furnaces were rated on comparable performance. The salesman who knew how in the past has had great advantage.

*Address of L. W. Millis, secretary of the Security Stove & Manufacturing Company, Kansas City, Missouri, delivered before the delegates to the Cleveland meeting of the National Warm Air Heating and Ventilating Association, April 13 and 14, 1927.

Since the adoption by the National Warm Air Heating and Ventilating Association of a definite method of rating, such knowledge has become a prime necessity. The poorest estimate that could be put upon such knowledge would be that he should at least have it for self defense. Even if he is selling to dealers only, he is certain to meet problems concerning installation. Unless he knows the application of his furnace to the dealer's particular problem he at once brands himself as a furnace illiterate. Every man here knows what I must say next.

Salesmen Should Know Why of Code

It is, use the Standard Code and solve the problem. The Code is so simple and definite that anyone who has nothing more than enough patience to make the simple calculations can design a practical warm air plant. But to be a successful salesman he should know more about the Code than that. He should know every crook and turn in it. He should know the reason for every factor used. Why glass surface is divided by 12, why glass includes the wooden frame, why net wall is divided by 60, why the cubical content is divided by 800, why the multipliers 9, 6 and 5 are used.

In fact, he should know the reason for everything in the Code that effects the delivery of heat from his furnace to the place where some human being needs it. You can hardly install a furnace so badly that it will not give *some* measure of satisfaction. If there is anything at all wrong with the furnace industry it is that fact. If every furnace installed gave the *full* satisfaction that the Code provisions make possible, the furnace factories would run overtime.

The Code also provides for a few things concerning chimneys. Every salesman should know how to calculate the amount of draft his or any other furnace requires when worked at various capacities. It would then be possible to use, intelligently, knowledge of chimneys. These two are interlocked very closely and cannot be ignored.

Salesmen Should Know Composition of Furnace Metals

There are other things than those printed in the Code that are of great importance as cranium filler in the salesman's kit. He should know something, perhaps more than just something, about the composition of the metal in his furnace. He should know, at least, enough not to talk about the temper of cast iron, or the purity of steel.

He is often besieged by dealers as well as users to replace grates, pots, or other parts because it is claimed they were made of rotten iron. Just as though molders could pick out "bad" iron and pour it into a series of parts, making up a set of grates, all of them being finally assembled in one particular furnace. A little knowledge of the law of chances would show the folly of such a conclusion.

However, I shall not insist on a knowledge of chance, because it might spoil many a little evening game. Neither the manufacturer nor the dealer destroy grates and pots, or break shakers. But, if the salesman cannot show the dealer clearly, so that the dealer can prove to the user the injustice of his claim, then it is inevitable that an unjust allowance will be made to the dealer, or the good-will of the dealer will be strained. This is in the nature of missionary work, but has great value.

It does seem like this should be enough technical stuff to crowd in along side of train schedules, credit data, and a lot of et ceteras. However, he may have all these and fall down on a really good heating plant that fails to heat, because the wrong kind of fuel is being used, or perhaps the right kind, but wrongly fired.

I am, therefore, compelled to add

a knowledge of fuels to the salesman's requirements.

In short, he should know the Standard Code from A to Z.

Chimneys from top to bottom.

Drafts from ash pit to chimney.

Iron from good to bad.

Fuel from carbon to smoke.

Combustion from oxygen to carbon dioxide.

And heat from "Sun" to "Under the Collar," as well as humidity from perspiration to dew point.

You say this sounds like speci-

fications for a college professor instead of a salesman. No college man knows a single thing you cannot use in this furnace business, and the salesman has a very great advantage over the professor, because he, and he alone, can carry the message to the man who can use it. Technical talk sells no furnaces. But technical knowledge, translated into perfect heating plants, creates demand for more and more furnaces.

The furnace business is in the

beginning of a great forward movement. It throws out its challenge to the highest type of intelligent, honorable salesmanship. Consciousness of incomplete knowledge acts as a wet blanket. If we are unconscious of our limitations we make no effort to change them, but if we are conscious of them we beat them down, and in the process find pardonable pride and untold joy in discovering that we had more ability than we suspected. This gives us an added satisfaction.

How to Develop a Pattern for Two Tapering Pipes to Intersect

Problem Was Met With in Actual Experience by a Student

By O. W. KOTHE, Principal St. Louis Technical Institute

THEY say that a thing which is worth doing is worth doing well. This is equivalent to saying in order to do a thing well you must know it well. So it is with many of the pipe fittings that sheet metal workers have to do with.

So many butcher out their connections and they make something, but they never get any satisfaction beyond simply doing what they have been doing. To learn to do things by rules of geometry has a great value in impressing certain shapes in the mind and how certain things work out under certain conditions.

It is not always necessary to lay a thing out geometrically after a person once knows the general shape it takes. It is this outline of shape that is important and where it is understood and can be analyzed it goes a long way to making a person more valuable in his work in a hundred ways that most folks don't know of.

Take a problem as we show in this drawing where a slightly tapering tee is joined to a larger tapering pipe off center, to know the general shape and the general position of lines are valuable in arriving at an approximate pattern, much like we used to hear of the old-

timers who used to say that they slapped their work out.

That is, these old-timers did their work by memory after they had certain shapes in mind. They were able to sketch out their work, and then with a small amount of trimming, made a right respectable job. But later generations did not have the coaching and concentrated experience on such practice and consequently their ability to guess at odd shapes is not very great and often very far from being accurate.

Now, to develop our problem, we first draw the elevation for the large taper and then we locate the center line for the branch tee. Next we draw a part plan of the taper for large pipe and divide a quarter of it in equal parts to give surface line on the elevation. The same thing is done for the branch pipe by means of the sections A and B. When lines are drawn over the surface they will form parabola lines as we show in plan.

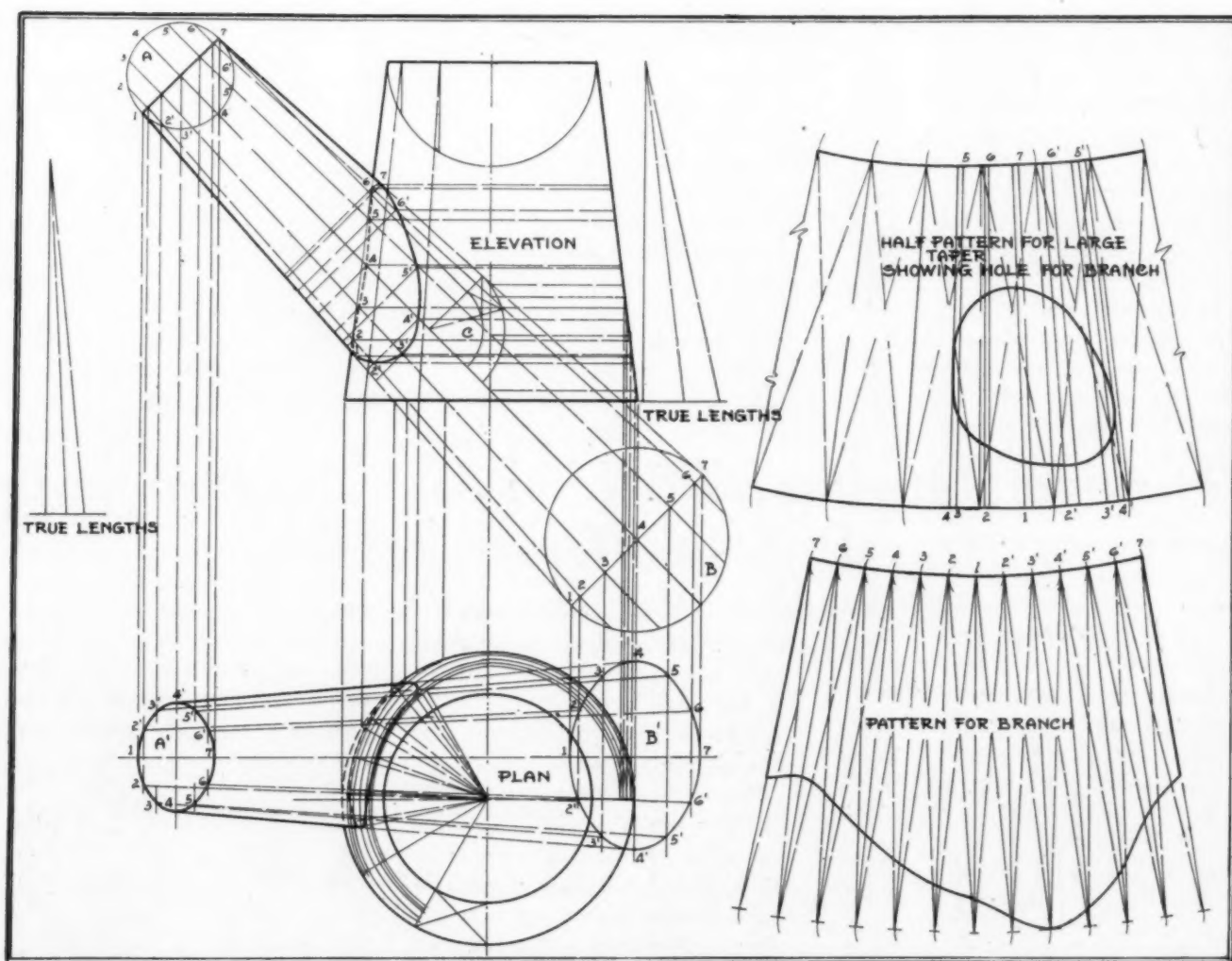
Men who are acquainted with this development can readily follow it, while those who are not acquainted with it will find it rather difficult to describe in this complicated problem.

We next develop a plan view for

the branch pipe, placing it off center in relation to the main plan as measurements may call for, and then we develop the ovals A' and B' by means of these lines. We pass through the parabola lines in plan and in that way establish the intersection between the branch pipe and the main reducer. From these new intersections or points of penetration between two pipes in plan we erect lines into elevation, thereby cutting similar lines which establishes the elevation miter as in point 1-2-3-4-5-6-7, etc. This then completes the working drawing and prepares the way for developing the pattern.

Owing to the slight taper in both of the fittings, it would be cumbersome to extend the side lines to an apex and use conical sweep method, so it is really better to use triangulation. The process for the main reducer is very simple, while that for the branch pipes can also be made so by drawing a partial plan in the elevation as at C, which is to be treated first as a straight taper joint.

After that is developed, the miter line is cut in by simply transferring lines to the side line of taper, much as though we used the sweep method and then transferred them



Patterns for Two Tapering Pipes to Intersect

into pattern to cut off those lines which gives the development of the piece.

In developing the opening in the main pipe, a similar procedure is followed, drawing radial lines in plan to intersections to points of penetration and placing them in the girth of the pattern, then by extending points from miter line in elevation to the right hand side, the true

lengths can be picked and set off in pattern to make the outline for opening.

This is a very interesting problem and is one that one of our students sent in some time ago as something that he had met with, and it shows the extent of work being done by men who are alive to their work and the opportunities their trade covers.

building and loan associations demanding waivers of lien so designed that the contractor signing relinquished all claim to unpaid balances. After thorough discussion, on motion by Mr. Jeske, seconded by Mr. Bauer, the secretary was instructed to write them, stating that we were in sympathy with their stand, and suggested taking this up with the building industries committee, which is considering all such matters at the present time.

On motion by Mr. Jeske, seconded by Mr. Tonnsen, the secretary was instructed to write the Master Builders' Association, telling them that because their association members are not affiliated with those of the Master Builders, and that the sheet metal state convention always takes place in February, the Sheet Metal Association could not ask its members to act on any of the Master Builders' committees.

Milwaukee Sheet Metal Men Oppose Building and Loan Lien Waivers

Association in Sympathy With Master Plumbers in Opposition to Waivers

THE Master Sheet Metal Contractors' Association of Milwaukee, Wisconsin, held a very instructive session April 6, 1927. President A. Schuman presided and

17 members were present.

A letter from the Master Plumbers' Association was read. In this they advised of their aims to bring about a change in the practice of

The American Rolling Mills inquiry as to whether any objections would be had by the association if representatives of the Milwaukee Corrugating Company and Follansbee Brothers were invited to attend the address on the manufacture of Armco ingot iron was considered. Decision made to tell them that the association would be glad to have representatives of the companies present.

The secretary was also instructed to inform the Copper and Brass Research Association that it would be advisable to bring lantern slides along for Mr. Gowen's talk. All members were to be notified and earnestly requested to attend.

On motion by Mr. Jeske, seconded by Mr. Bauer, the treasurer was instructed to pay \$50.00 to the Employers' Council if Mr. Hammann, the association's representative, found this to be our fair pro rata share of the expense in carrying on the campaign discouraging the establishing of a union wage scale in school building work.

Mr. Jeske asked whether the Geo. F. Rohn Electrical Company could become members of the Employers' Council through our association. Because most of his employes are sheet metal workers, he thought our association was the proper avenue through which to enter. On Mr. Hammann's motion, seconded by Mr. Goethel, it was so approved.

The secretary was instructed, on motion by Mr. Hammann, seconded by Mr. Eschenberg, to inform Chas. Caspari, Carl Goese, and John Scholtz Sheet Metal Works that they had been dropped as members of the association. L. W. Bell was reported to be out of business.

L. F. Reinke, secretary, won the attendance prize. For next meeting this will amount to \$4.25.

Life of Galvanized Tanks Containing Chopped Ice and Salt Brine, Six Years

In the April 2nd issue of AMERICAN ARTISAN there appeared an inquiry from R. A. MacTavish, proprietor of the Glenwood Sheet

Metal Works, Glenwood Springs, Colorado, in which Mr. MacTavish wanted to know how long a 24-gauge galvanized tank containing chopped ice and salt brine will endure.

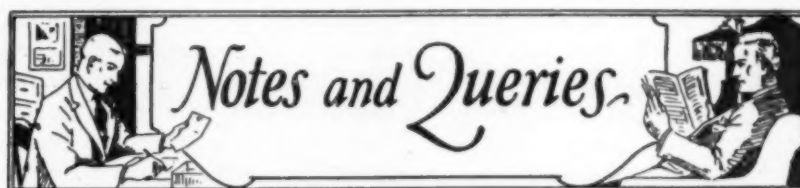
In answer to this inquiry, George L. Bennet, director, building trades extension of the Sheet Steel Trade Extension Committee, says:

"The most advice on the subject comes from the field of artificial ice manufacture. There many hundreds of thousands of ice cans of dimensions, roughly, 12 inches by 24 inches by 4 feet to 5 feet deep are in daily use, and the average life is about six years. These are used in a solution of common salt (NaCl) and water of such density as to prevent freezing at a temperature approximately 10 degrees above zero.

"These cans are kept wet most of the time, with the brine on the outside and fresh water on the inside.

The ice is removed from them by taking the can from the contents in about 35 to 50 hours, and the ice is freed by wetting or a brief immersion in warm water. The ice is then dumped out of the ice can, which is thereupon immediately filled with fresh water and left for further freezing. These cans are generally made out of 16 to 18-gauge steel and are regalvanized after being formed.

"I should judge attention to the detail of regalvanizing after the can is formed will be of prime importance to these cans which your subscriber is interested in. There is no absolutely necessary relations between the weight of coating and weight of covering which will be applied to this gauge. I would suggest that if these cans are of such a shape that their sides and lids bulge in use, that a heavier gauge be used so as to prevent the spalling of the galvanizing.



Electric Nickel Plating Machine

From Corradino Sheet Metal Works, 802 Arizona Avenue, Trinidad, Colorado.

Please advise where I can obtain an electric nickel plating machine.

Ans.—Charles F. L'Hommedieu and Sons Company, 4520 Ogden Avenue, and George A. Stutz Manufacturing Company, 1645 Carroll Avenue, both of Chicago, Illinois.

Semi-Refined Palm Oil

From Dan S. Colvin, care of the Fairmont Creamery Company, Moorhead, Minnesota.

Please advise me where I can purchase semi-refined palm oil such as is used in the process of tin plating.

Ans.—Wishnick-Tumpeier Chemical Company, 365 East Illinois Street, Chicago, Illinois.

Retinning Cream Vats and Coils.

From L. R. Hamman, 507 East Prairie Avenue, Decatur, Illinois.

Please give me information in regard to retinning cream vats and coils.

Ans.—Refer to Thompson-Bremmer and Company, 1750 Carroll Avenue, and R. J. Wade and Company, 5424 West Chicago Avenue, both of Chicago, Illinois, who do this work.

"Samson" Punch

From H. M. Tovar Company, 411 Pine Street, Port Huron, Michigan.

Kindly advise us who makes the "Samson" punch.

Ans.—Machine Appliance Corporation, 351 Jay Street, Brooklyn, New York.

Sheet Copper

From Carroll Plumbing and Heating Company, South Main Street, Sandwich, Illinois.

Please advise where we can obtain sheet copper for making up valleys and gutters.

Ans.—Merchant and Evans Company, 347 North Sheldon Avenue, and C. G. Hussey and Company, 212 North Jefferson Street, both of Chicago; also the Milwaukee Corrugating Company, Milwaukee, Wisconsin.

Lack of Proper Instruction of Salesmen Among Drawbacks to Selling

Sizing Up Customer Is an Art in Itself That Must Be Learned

INSTRUCTION of salespeople stops too often with a few elementary lessons and then is almost entirely dropped. Such instruction, it is claimed, should be of a progressive nature and be brought as close to the actual department in which a sales clerk does his daily work and with the specific problems that he meets. Remarkably enough, it was added, the salesperson gets more of this specific instruction in some of the smaller stores, despite the highly organized instruction procedure of their larger competitors.

In knowledge of stock and the best way of presenting the merchandise to consumers there is great need of "keeping everlastingly at it" to have the salespeople bring the best results for a store. Many sales have been lost because the salesperson did not know whether a certain article was in stock and had to call over to somebody else or chase around the sales floor to get the desired information.

Sizing up the customer is an art in itself, proficiency in which does not come through a few lessons given when the employe first comes to the store. There are so many different angles to this matter that time could be spent extremely profitably in taking up a single feature in frequent discussions with applications to actual conditions.

The drilling of salespeople in the best way of presenting their sales talk to the consumer and even the actual wording of the talk is admittedly a very difficult thing to do. There should be no attempt, of course, to have the sales clerks talk in a parrot fashion, with a set of rules for each and every customer. This has been the practice of a certain kind of salesman in wholesale lines, but it is doubtful whether even in this field the set talk has the necessary sincerity that is a requisite in good selling.

The case of salespeople having an antipathy to certain merchandise is also something to be dwelt on in instructing salespeople. It must be clearly brought out that the clerk cannot determine the policy of the store. For example, a certain store found that ensemble suits were not selling the way they should. The styles were good and the merchandise was attractively priced. An investigation was made and the salesgirls sounded out. It was discovered that three salespersons had decided personal views against the ensemble style and that they had allowed them to govern the showing of the ensembles to customers.

Another angle of the question of selling deals with the matter of the goods to be pushed. Too often the salesperson finds that the featured low-priced merchandise sells easily and accordingly confines attention to these goods. But the store, as a rule, makes but little on this class of goods, which are more in the nature of inducements to get customers into the store. Here is where expert instruction is needed for the salesperson in selling not what is easiest, but what will suit the customer and yet bring the best return for the store.



Southeastern Retail Hardware and Implement Association, composed of Alabama, Florida, Georgia and Tennessee. Convention and Exhibition, Jacksonville, April 19, 20, 21, 1927. Walter Harlan, Secretary, 701 Grand Theater Building, Atlanta, Georgia.

Texas Sheet Metal Contractors' Association, Hotel Adolphus, Dallas, Texas, April 24 and 25. Harry Stanyer, Secretary-Treasurer, 2422 Alamo Street, Dallas.

National Association of Sheet Metal Contractors, Adolphus Hotel, Dallas, Texas, April 26, 27, 28 and 29, 1927. W. C. Markle, Secretary, 850 West North Avenue, Pittsburgh, Pennsylvania. Arkansas Retail Hardware Association Convention, Little Rock, May, 1927. I. P. Biggs, Secretary, Little Rock.

Indiana Fur-mets annual convention, Hotel Severin, Indianapolis, May 4, 5 and 6, 1927. Harry R. Jones, 308 Kenmore road, Indianapolis, Secretary.

Indiana Heating and Ventilating Association Convention, Hotel Severin, Indianapolis, May 4, 5 and 6, 1927. Frank E. Anderson, Terre Haute, Indiana, Secretary.

Indiana Sheet Metal Contractors' Convention, Hotel Severin, Indianapolis, May 4, 5 and 6, 1927. William N. Strasser, Anderson, Indiana, secretary.

Metal Branch meeting of the National Hardware Association, Hotel Cleveland, Cleveland, Ohio, May 5 and 6, 1927. F. O. Schoedinger, Columbus, Ohio, Chairman.

Southern Hardware Jobbers' Association, Peabody Hotel, Memphis, Tennessee, May 10 to 13, 1927. John Donnan, Secretary, Richmond Virginia.

Old Guard Southern Hardware Salesmen's Association, Peabody Hotel, Memphis, Tennessee, May 11, 1927. R. P. Boyd, Secretary, R. F. D. No. 4, Box 19, Knoxville, Tennessee.

Western Warm Air Furnace & Supply Association, June 1 and 2, 1927, Peoria, Illinois. John H. Hussie, Secretary, 3624 La Fayette Avenue, Omaha, Nebraska.

Mississippi Retail Hardware and Implement Association Convention and Exhibition, headquarters, White House, Biloxi, June 13, 14, 15, 1927. Buy Nason, Secretary, Columbus.

National Retail Hardware Association Congress, Mackinac Island, Michigan, June, 1927. H. P. Sheets, Secretary-Treasurer, 130 East Washington Street, Indianapolis, Indiana.

Missouri Sheet Metal Contractors' Association at Sedalia, Missouri, July 12 and 13, 1927. Ben Kolbenschlager, 3618 North Grand Street, St. Louis, Secretary.

Retail Hardware Doings

Arkansas

Pate and Willock have opened a hardware store at Little Rock.

Illinois

The Goodking Hardware Company, Chicago, are opening another hardware store at 83 West Van Buren Street. This makes their third loop store.

Charles Sproat, Elmer Martin and Art Hindstrom have purchased the hardware stock of E. E. Gridley, West Chicago. The new firm name will be the West Chicago Hardware Company.

Indiana

The Craig-Tumilty Hardware Company has opened for business at Greensburg.

Iowa

R. H. Lowe has opened a hardware store at Marion.

Kansas

William Kraemer has opened a hardware store under the name of the Kraemer Hardware Company at Marysville.

Frank Nuss, Harry J. Bowne and William MacFerran, Junior, have purchased the Austin Hardware Store at 511 Kansas Avenue, Topeka. The new concern will be known as the Bowen-Nuss-MacFerran Company.



Above, the model Ingot Iron Shop of Charles Dyson, London, Ontario. At the left is quite an elaborate cornice—typical of the quality of work Mr. Dyson is enabled to turn out with ARMCO Ingot Iron.

Not for today but for the future

BUILDING for the future with ARMCO Ingot Iron—might well be the slogan of Charles Dyson, Ingot Iron Shop Contractor, of London, Ontario. For in spite of the slight extra cost involved, Mr. Dyson has little difficulty in convincing his customers that the rust-resisting qualities of pure iron save them money.

Moreover, Mr. Dyson has had another interesting experience, in common with many other contractors. No matter how difficult or intricate the job, ARMCO Ingot Iron forms, solders and shears easily. An important factor in reducing time and labor costs.

Whether you specialize in repairs or new work, big jobs, or little, ARMCO Ingot Iron, consistently used, is sure to increase your profits. To find out how, just mail the coupon.



Back of the triangle the institution; for more than a quarter of a century makers of ARMCO Ingot Iron, the iron that works so easily and resists rust.

THE AMERICAN ROLLING MILL CO. MIDDLETOWN, OHIO

Export: The ARMCO International Corp.
Cable Address.....ARMCO, Middletown

District Sales Offices at

- | | | |
|---|---|---|
| 122 S. Michigan Ave.,
Chicago, Illinois | 163 General Motors Bldg.,
Detroit, Michigan | 432 Oliver Bldg.,
Pittsburgh, Pa. |
| 1402 Union Trust Bldg.,
Cincinnati, Ohio | 50 Church Street,
New York City, New York | 1135 Boatmen's Bank Bldg.,
St. Louis, Mo. |
| 1522 B. F. Keith Bldg.,
Cleveland, Ohio | 1301 Franklin Trust Bldg.,
Philadelphia, Pa. | Tenth and Bryant Sts.,
San Francisco, Calif. |

THE AMERICAN
ROLLING MILL CO.,
Middletown, Ohio.

Send me complete information about the durable, workable qualities of ARMCO Ingot Iron; how I may better sell it to my customers and how it will increase my profits.

ARMCO **INGOT IRON**
The Purest Iron Made

Name
Street
City..... Province.....
(American Artisan—4-16-27)

When writing mention AMERICAN ARTISAN—Thank you!

Steel Market Is Steady—Competition for New Business Is Keen

*Buying Is Light in Nonferrous Metals—
Pig Iron Market Continues Quiet*

PRODUCTION of finished steel is proceeding at a rate only slightly under the record pace of March. Incoming business is lighter in many lines, forecasting contraction in the future, but at the moment the carry-over of tonnage from last month is a sustaining influence.

The unfilled tonnage statement of the United States Steel Corporation is illuminating. In March, 1926, when steel ingot output reached a peak of 166,236 tons daily, the order book of this leading interest shrank 236,887 tons. But in March, 1927, when steel ingot production attained an all-time daily high of 168,867 tons, unfilled tonnage fell off only 43,979 tons.

The expectation, therefore, is that the seasonal drift to lower levels of production will be more gentle this year. At present the steelmaking rate is about 90 per cent, compared with the record of 94.1 per cent in March; last year the contraction was from a rate of 92.6 per cent in March to 88.3 per cent in April.

The hesitancy of new business to come forward has already intensified competitive effort. Some producers have become less discriminating in quoting extreme minimum prices normally applying only to attractive or tonnage orders. In some directions easier credit terms have been granted.

Pig Iron

The pig iron market at Pittsburgh is remarkably quiet, with steelmaking grades showing more strength than foundry and malleable. Basic is scarce, steelworks furnaces refusing to sell. All available stocks of basic are closed out. One western Pennsylvania steel interest purchased approximately 2,500 tons through a broker at \$19, valley.

One sale of 150 tons of bessemer this week brought \$19.50, valley. Another valley producer obtained \$20 on a 100-ton lot late last week, understood to be noncompetitive. Foundry and malleable demand is not sufficient to impart strength to substantiate a flat price of \$19, valley, and \$18.50 still is available on small lots.

At Chicago, fairly heavy spot buying of northern foundry and malleable pig iron features the market. Several third quarter inquiries have appeared, including one for 500 tons of foundry from Milwaukee. Several inquiries are for 250 to 1,000 tons of No. 2 foundry and malleable. A northern Indiana melter has placed 500 tons to the East.

Stocks of iron are not evenly balanced and brokers have experienced some difficulty in quoting on certain grades of low phos and high silicon iron.

Pig iron buying at Birmingham is limited to small lots. Ten blast furnaces are on foundry iron, 12 on basic and one on ferromanganese. Surplus iron has been worked down considerably. The price is firm at \$18, base, Birmingham. March production in Alabama was the largest so far this year.

Zinc

Statistics by the American Zinc Institute for March show domestic shipments of 48,107 tons of all grades of slab zinc, a large sum, but not quite up to the movement of last March and some other months of last year.

Production continued practically undiminished from the high tide of January, at 56,546 tons, so that even after larger exports of over 5,000 tons, stocks increased 3,341 tons to 36,279, the largest since the latter part of 1924. Curtailment in

production recently was reported, but did not affect March statistics.

Copper

The copper market has slumped to 13.00 cents, Connecticut, with $\frac{1}{8}$ to $\frac{1}{4}$ cent added for Midwest, on account of light buying. Producers are not pushing the market as a general thing, but here and there low offers have been made, and after a period of reluctance all producers indicated willingness to accept orders at the lower price. Buyers and sellers generally are waiting.

Tin

The tin market has swung around a great deal lately. After a rise without much buying, the market sagged of its own weight. Spot stocks are limited, so there is a range of 2 cents between spot and July, with other months scaled accordingly, but good supplies are afloat and nearby needs appear well covered.

Lead

The price of lead has been steady for a few days since the recent decline, and while some interest is shown in April shipment, buying as a whole remains light.

Solder

Chicago warehouse prices on solder are as follows: Warranted 50-50, \$42.75; commercial 45-55, \$39.75; and plumbers', \$36.75, all per 100 pounds.

Old Metals

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$17.00 to \$17.50; old iron axles, \$22.00 to \$22.50; steel springs, \$16.25 to \$16.75; No. 1 wrought iron, \$12.00 to \$12.50; No. 1 cast, \$15.50 to \$16.00, all per net tons. Prices for non-ferrous metals are quoted as follows, per pound: Light copper, 9 cents; zinc, $4\frac{1}{2}$ cents, and cast aluminum, 15 cents.

Round
Corrugated



Plain Round



NEVER MADE WITHOUT THIS

TRADE *F. Dieckmann* MARK

Quality and Service Made 'em Famous

Made of one piece of heavy gauge material, in all styles and angles from 10 to 90 degrees, of 24, 26, 28 ga. ternes, then galvanized after formation.

DIECKMANN
Elbows and Shoes
*are the standard of the market
and always give satisfaction*

Send for new catalogue 26 showing complete line

The Ferdinand Dieckmann Co.

P. O. Station B, Cincinnati, O.

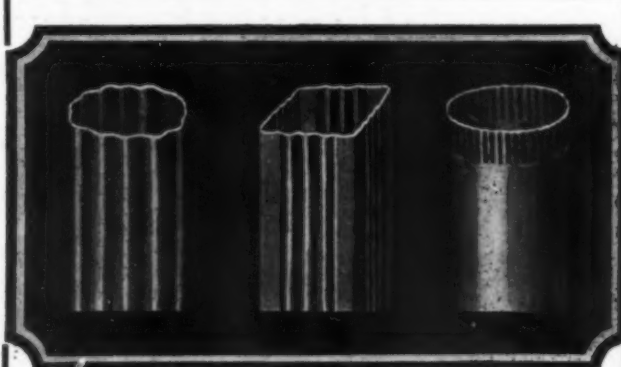
Square
Corrugated
Style A



Square
Corrugated
Style
B



Not made lighter than
28 ga. or 16 oz. copper

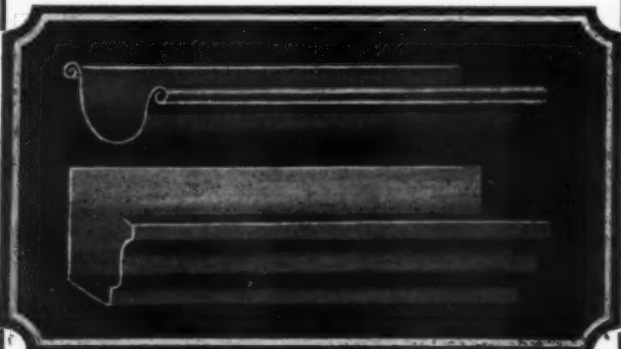


Defies age and time

Lead Clad Eaves Trough and Spouting provides a much needed, long-service eaves trough and spouting.

Leadclad Eaves Trough and Spouting is made from high grade, tough, sheet steel coated with a heavy jacket of pure lead. (Not a mixture of tin and lead.) It is the only genuine pure lead coated material of this kind manufactured. It will outwear, many times over, the ordinary galvanized or painted eaves trough or spouting.

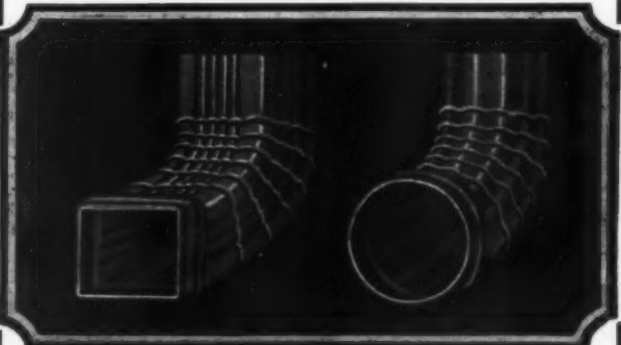
Leadclad does not require painting, but may be painted if color is desired.



For flashing no more durable material can be found than Leadclad sheets. Establish a reputation for better work by erecting Leadclad, the material that will render longer service.

Leadclad can be obtained in all standard forms of eaves trough and spouting, or it may be obtained in sheets of any desired gauge from which to form your own.

Get the roofing job, too, by using Leadclad Decorative Shingles or Spanish Tile.



Wheeling Metal & Mfg. Co.,
Wheeling, W. Va.

Dept. A A

Please send information regarding special Leadclad dealer proposition. Check products you are particularly interested in and mail with coupon.

☐ Shingles ☐ Siding ☐ Roll
☐ Tile ☐ Eaves Trough ☐ Sheets

Name

Address

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS

PIG IRON

Chicago Fdy., No. 2.....	\$20 00
Southern Fdy., No. 2.....	24 01
Lake Superior Charcoal.....	27 04
Malleable.....	20 00

FIRST QUALITY BRIGHT

TIN PLATES

IC 20x28 112 sheets.....	\$25 10
IX 20x28.....	29 60
IXX 20x28 56 sheets.....	16 20
IXXX 20x28.....	17 55
IXXXX 20x28.....	18 95

TERNE PLATES

IC 20x28, 40-lb. 112 sheets	Per Box \$26 00
IX 20x28, 40-lb. 112 sheets	28 50
IX 20x28, 25-lb. 112 sheets	21 75
IX 20x28, 25-lb. 112 sheets	24 25
IC 20x28, 20-lb. 112 sheets	20 00
IV 20x28, 20-lb. 112 sheets	22 50
IC 20x28, 15-lb. 112 sheets	18 50

"ARMCO" INGOT IRON PLATES

No. 8 ga. up to and including	
1/4 in.—100 lbs.	\$4 55

COKE PLATES

Cokes, 90 lbs., base, 20x28	\$13 50
Cokes, 90 lbs., base, 20x28	13 50
Cokes, 100 lbs., base, 20x28	14 00
Cokes, 107 lbs., base, 1c	
20x28	14 30
Cokes, 135 lbs., base IX	
20x28	16 40
Cokes, 155 lbs., base, 56	
sheets	9 20
Cokes, 175 lbs., base, 56	
sheets	10 05
Cokes, 195 lbs., base, 56	
sheets	10 90

BLUE ANNEALED SHEETS

Base 10 ga.....per 100 lbs.	\$2 30
"Armco" 19 ga.....per 100 lbs.	4 00

ONE PASS COLD ROLLED

BLACK

No. 18-20.....per 100 lbs.	\$2 75
No. 22.....per 100 lbs.	3 90
No. 24.....per 100 lbs.	3 95
No. 26.....per 100 lbs.	4 05
No. 27.....per 100 lbs.	4 10
No. 28.....per 100 lbs.	4 20
No. 29.....per 100 lbs.	4 35
No. 30.....per 100 lbs.	4 45

"ARMCO" GALVANIZED

"Armco" 24.....per 100 lbs.	\$6 15
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GALVANIZED

No. 16.....per 100 lbs.	\$4 30
No. 18.....per 100 lbs.	4 45
No. 20.....per 100 lbs.	4 60
No. 22.....per 100 lbs.	4 65
No. 24.....per 100 lbs.	4 80
No. 26.....per 100 lbs.	5 05
No. 27.....per 100 lbs.	5 15
No. 28.....per 100 lbs.	5 30
No. 29.....per 100 lbs.	5 70

BAR SOLDER

Warranted 50-50.....per 100 lbs.	\$42 75
Commercial 45-55.....per 100 lbs.	39 75
Plumbers.....per 100 lbs.	36 75

ZINC

In Slabs.....	\$8 50
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SHEET ZINC

Cash Lots (500 lbs.).....	\$13 00
Sheet Lots.....	14 00

BRASS

Sheets, Chicago base.....	18c
Mill Base.....	18c
Tubing, brazed base.....	27c
Wire, base.....	19c
Rods, base.....	16 1/4c

COPPER

Sheets, Chicago base.....	21 1/2c
Mill Base.....	20 1/2c
Tubing, seamless base.....	24 1/2c
Wire, No. 9, B & S Ga.....	17 1/2c
Wire, No. 10, B & S Ga.....	18c
Wire, No. 11, B & S Ga.....	18 1/2c
Wire, No. 8, B & S Ga. and heavier.....	17 1/2c

LEAD.

American Pig.....	\$8 10
Bar.....	9 10
Sheet.....	
Full Coils.....per 100 lbs.	14 00
Cut Coils.....per 100 lbs.	14 25

TIN

Pig tin.....per 100 lbs.	\$77 00
Bar tin.....per 100 lbs.	78 00

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS

Paper up to 1/16.....	6c per lb.
Roll board.....	6 1/4c per lb.
Mill board 3/32 to 1/2.....	6c per lb.
Corrugated Paper (250 sq. ft. to roll).....	\$5.00 per roll

BRUSHES

Hot Air Pipe Cleaning Bristle, with handle, each	\$0 85
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Flue Cleaning

Steel only, each.....	1 25
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BURRS

Copper Burrs only.....	40-50%
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CEMENT, FURNACE

American Seal, 5-lb. cans, net	\$ 40
American Seal, 10-lb. cans, net	80
American Seal, 25-lb. cans, net	2 00
Pecora.....per 100 lbs.	7 51

CHIMNEY TOPS

Iwan's Complete Rev. & Vent.....	30%
Iwan's Iron Mountain only.....	35%
Standard.....	30 to 40%

CLINKER TONGS

Front Rank, each.....	\$0 75
Per doz.....	8 40

CLIPS

Damper Acme, with all tail pieces, per doz.....	\$1 25
Non Rivet tail pieces, per doz.....	25

COPPERS—Soldering

Pointed Roofing

3 lb. and heavier.....per lb.	40c
2 1/2 lb.	per lb. 45c
2 lb.	per lb. 48c
1 1/2 lb.	per lb. 55c
1 lb.	per lb. 60c

CORNICE BRAKES

Chicago Steel Bending Nos. 1 to 6B.....	Net
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CUT-OFFS

Gal., plain, round or cor. rd. 26 gauge.....	30%
28 gauge.....	35%

DAMPERS

"Yankee" Hot Air 7 inch, each 20c, doz.....	\$1 75
8 inch, each 25c, doz.....	2 40
9 inch, each 30c, doz.....	2 75
10 inch, each 32c, doz.....	3 00

Smoke Pipe

7 inch, each.....	\$0 35
8 inch, each.....	40
9 inch, each.....	50
10 inch, each.....	60
12 inch, each.....	90

Reversible Check

8 inch, each.....	\$1 55
9 inch, each.....	1 70

DIGGERS

Post Hole Iwan's Split Handle (Eureka) 4-ft. Handle.....per doz.	\$14 00
7-ft. Handle.....per doz.	34 00
Iwan's Hercules pattern, per doz.....	14 90

EAVES TROUGH

Galv. Crimpedge, crated 75 & 5% Zinc, "Barnes".....	60%
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ELBOWS

Conductor Pipe Galv., plain or corrugated, round flat Crimp. 28 Gauge.....	60%
26 Gauge.....	45%
24 Gauge.....	15%

Galv. & Terne Steel

Plain Rd. and Rd. Corr.: 28 Ga.	60%
26 Ga.	45%
24 Ga.	15%

Square Corrugated

No. 28 Gauge.....	50%
26 Gauge.....	35%

Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated. Not nested.....	70 & 5%
Nested solid.....	70 & 5%

Sq. Corr., A. & B. & Octagon:

28 Ga.	50%
26 Ga.	35%

Portico

1", 1 1/4", 1 1/2".....	45%
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Copper

16 oz., all designs.....	45%
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Zinc—

All styles.....	60%
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ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue "Milcor" No. 28 Gauge, Doz.	\$1 25
5-inch.....	1 25
6-inch.....	1 25
7-inch.....	1 75

Special Corrugated

6-inch.....	\$1 00
7-inch.....	1 60

Adjustable—Uniform Blue

"Milcor" No. 28 Gauge, Uniform Blue. 5-inch.....	\$1 75
6-inch.....	1 85
7-inch.....	2 15

WOOD FACES—50% off list.

726-6-12 1/4% (100 rods).....	\$28 63
1948-614 1/4% (100 rods).....	43 52

FENCE

726-6-12 1/4% (100 rods).....	\$28 63
1948-614 1/4% (100 rods).....	43 52

FILES AND RASPS

Heller's (American).....	50-10%
American.....	60-10%
Arcade.....	50%
Black Diamond.....	50%
Eagle.....	50%
Great Western.....	50%
Kearney & Foot.....	50%
McClellan.....	50%
Nicholson.....	50%
Simonds.....	60%

FIRE POTS

Clayton & Lambert's East of west boundary line of Province of Manitoba, Canada, No. Dakota, So. Dakota, Nebraska, Kansas, Oklahoma, Amarillo, San Angelo and Laredo, Texas.....	52%
West of above boundary.....	48%

Geo. W. Diener Mfg. Co. Ea.

No. 02 Gasolene Torch, 1 qt.	\$ 5 50
No. 0250, Kerosene, or Gasolene Torch, 1 qt.	7 50
No. 10 Tinner's Furn. Square tank, 1 gal.	12 00
No. 15 Tinner's Furn. Round tank, 1 gal.	12 00
No. 21 Gas Soldering Furnace.....	3 60
No. 110 Automatic Gas Soldering Furnace.....	10 50

Double Blast Mfg. Co.

Gasolene, Nos. 25 and 36.....	60%
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Quick Meal Stove Co.

Vesuvius, F. O. B. St. Louis 30% (Extra Disc't. for large quantities)	30%
---	-----

GALVANIZED WARE

Pails (Galv. after made), 10-qt.	\$2 12
Tubs (Galv. after made), No. 1.....	6 00
No. 2.....	6 05

GLASS

Single Strength, A. 25-in. brackets.....	87%
Single Strength, A. 34 to 40-in. bracket.....	86%
Single Strength, A. all other brackets.....	86%
Double Strength, A. all sizes.....	86%

HANGERS

Conductor Pipe Milcor Perfection Wire.....	25%
Eaves Trough Milcor Eclipse Wire.....	15%
Milcor Triplex Wire.....	10%
Milcor Milwaukee Extension 10% Milcor Steel (galv. after forming) List.....	plus 12 1/2%
Milcor Selflock E. T. Wire, List.....	plus 50%

HOOKS

Box V. & B. No. 1, each.....	\$0 34
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Conductor

"Direct Drive" Wrought Iron for wood or brick.....	15%
Hay V. & B. No. 1, each.....	\$0 26

HUMIDIFIERS

"Front-Range," Automatic In single lots.....	50%
In lots of 10 or more.....	50-50%
In lots of 25 or more.....	50-10%
Vapor pans, etc., each.....	50%

LIFTERS

Stove Cover Coppered.....per gro.	\$6 00
Alaska.....per gro.	4 75

MALLETS

Tinners Hickory.....per doz.	\$2 25
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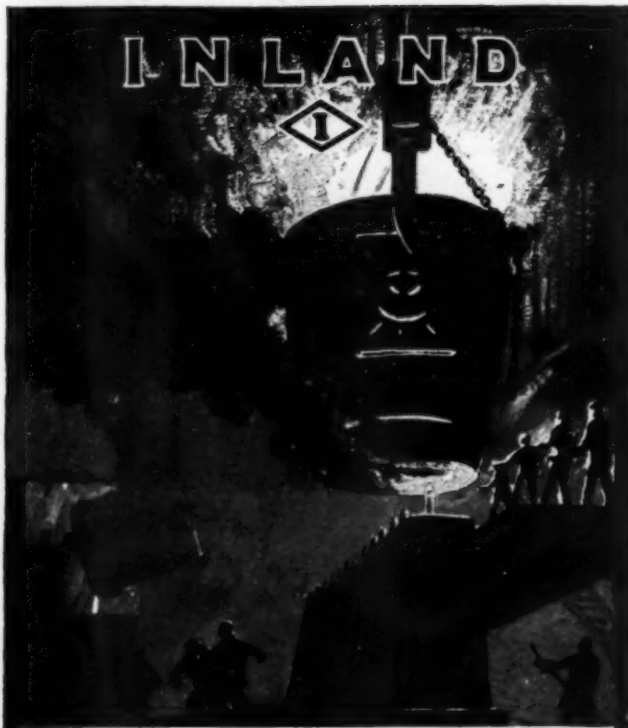
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(Continued on Page 148)



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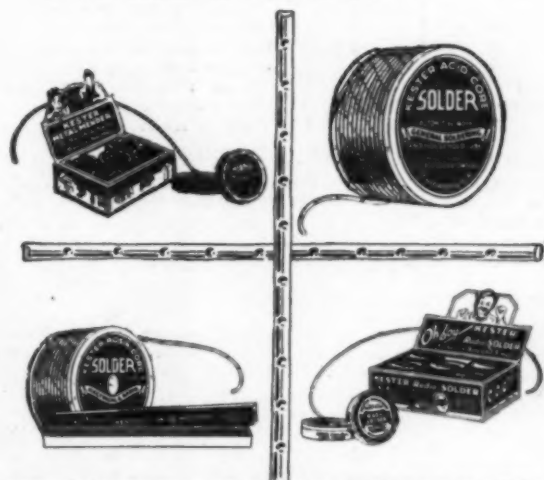
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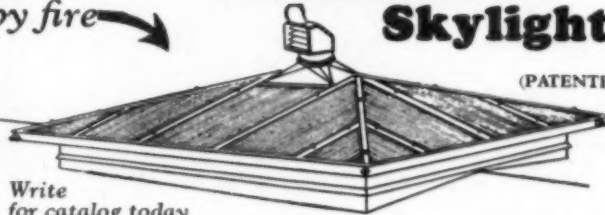
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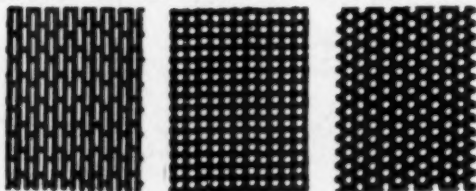
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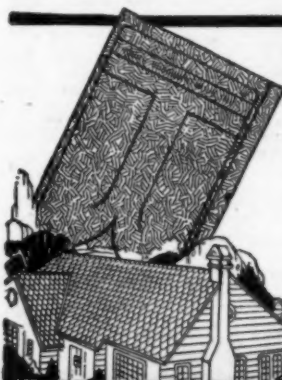
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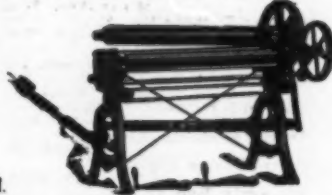
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Any yearly subscriber to **AMERICAN ARTISAN** may insert advertisements of not more than fifty words in our Want and Sales Columns **WITHOUT CHARGE**.

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Lightning Rods—Dealers who are selling **Lightning Protection** will make money by writing us for our latest **Factory to Dealer Prices**. We employ no salesmen and save you all overhead charges. Our **Pure Copper Cable and Fixtures** are endorsed by the **National Board of Fire Underwriters** and hundreds of dealers. Write today for samples and prices. **L. K. Diddle Company, Marshfield Wisconsin.**

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For Sale—Sheet metal and furnace business, in one of the fastest growing towns in southeastern Missouri. Population 14,000. Established 12 years, average 40 furnaces per year. Also 5-room modern bungalow. Good reason for selling. Address **B-6, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 16-3t

For Sale—Plumbing and heating business established 18 years, leading one in small Northern Illinois city. Owner retiring. Plenty of business, low rent, best location. About \$1,500 required. Write for details. Brokers keep off. Address **Box 126, Marengo, Illinois.** 16-3t

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We are open for exclusive Eastern representation of **Western Manufacturers' goods**. Address **B-7, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 16-3t

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Wanted—At once, first-class sheet metal worker. Must be able to lay out own patterns. No "slow poke" wanted. One with roofing experience preferred. Give full qualifications and references in first letter. Address **C-93, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 14-3t

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Wanted—Tinner and sheet metal worker; one who is able to work from blue prints and lay out and do any kind of sheet metal work, including cornices, skylights, ventilating systems, dust collecting hoods and piping. We want a sober, industrious man and one who is a neat workman. If unable to meet the above qualifications do not apply. The position is in Indianapolis, Ind., and is steady. State age, whether married or single, give reference and past experience. Address **C-95, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 14-3t

Wanted—Furnace salesman. Cincinnati territory. An opportunity for you to operate a furnace business as your own with modern line, moderate prices, complete co-operation. Must be capable of selling, superintending, installation, etc. Acquaintance with Cincinnati trade desirable. A real opportunity for the right man. Write us fully and in confidence. Address **C-94, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 14-3t

Wanted—A practical furnace salesman to sell high class warm air heating apparatus. One capable of taking complete charge of sales for furnace department. A drawing account to be charged against liberal commission and a share of the net profits of the furnace department. **Interstate Cornice Works, Sioux City, Iowa.** 15-3t

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Situation Wanted—By first class plumber and tinner, also furnace man. Have worked at everything that comes to a shop. Married; want a steady position. Please state wages. Address **C-99, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 15-3t

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Situation Wanted—By sheet metal worker, expert on trough gutter and furnace work. Also have oil burner installation and service experience, 27 years of age, fast and neat workman. Address **R. S., care Auto Radiator and Sheet Metal Co., 316 W. Park Avenue, Waterloo, Iowa.** 16-3t

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Situation Wanted—By a first class plumber who has had 15 years' experience in all lines of the plumbing and heating trades. I carry state plumbing licenses from three states and have worked in both large cities and small towns. Am a first class joint wiper and lead worker and can do warm air furnace work. 33 years of age, single, of good habits and would like to get a steady position. Can furnish references from my present employer. Address—**Russell Hickie, Dunlap, Iowa.** 15-3t

Situation Wanted—Position as tinner and furnace man. Can also do plumbing and hot water heating. Married man. Must be steady position. Can take charge of shop and handle anything that comes in the shop. State wages and particulars. Can furnish best of references. Address **Lee O. Bailey, Parkston, South Dakota.** 14-3t

Situation Wanted—By sheet metal worker and first class furnace installer. Must be steady year around. Would take over shop and run on shares. Can make change on short notice. Prefer shop in connection with hardware. No floater. **J. M. Erpelding, 1159 N. Union, Decatur, Illinois.** 15-3t

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Situation Wanted—To sell Warm Air Furnaces, boilers or general heating apparatus. Know the heating game in all its branches. Long experience selling, practical as well. Will sell only a first class product. Address—**A. Salesman, 843 West Spring Street, Lima, Ohio.** 15-3t

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Situation Wanted—A1 plumber and sheet metal man, fully competent in all lines of the trade, wants a good paying, steady position, with a live firm. Answer, stating wages. Address **C-96, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 14-3t

Situation Wanted—As sheet metal worker. Have had 21 years' experience. Also do plumbing. Can give good references. Address—**B-2, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 15-3t

Situation Wanted—By tinner and furnace installer. Can also help in hardware store when not busy in shop. Address **Tinner, 661 Manomin Avenue St. Paul, Minnesota.** 16-3t

Situation Wanted—By first class tinner and furnace man. Full experienced. Please state particulars in first letter. Address—**J. H. Dennick, 209 N. 2nd St., De Kalb, Illinois.** 15-3t

Situation Wanted—By tinner, sheet metal worker and furnace man. Illinois or east Iowa preferred. Address **275 East Warren St., Galesburg, Illinois.** 14-3t

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For Sale—1, 20" Bar folder, 1 brass mounted tin groover, small turning machine, large turning machine, large burring machine, wiring machine, newton circular shear, hatchet stake 13", blow horn stake, square head stake, 2 3/4 x 1/4, round head stake, double seaming stake, conductor stake 28" bench shear. The machines are P. S. and W. Incased with screw standards. Have been used only four years. Make me a cash offer. **F. O. B., Toledo, Iowa. R. E. Mead, Toledo, Iowa.** 16-3t

Wanted—To buy a used squaring shear, 30 or 36 in., also a 8-ft. cornice brake, both must be in good condition and at a reasonable price. Address **Nicholsen & Hawk, 326 South Jefferson St., New Castle, Pa.** 14-3t

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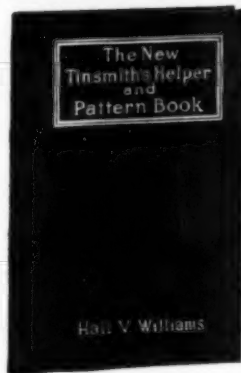
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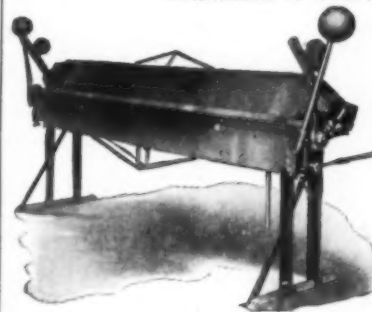
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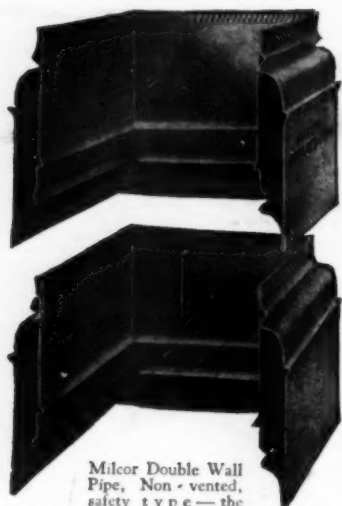
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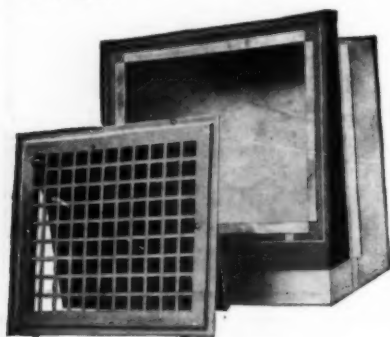
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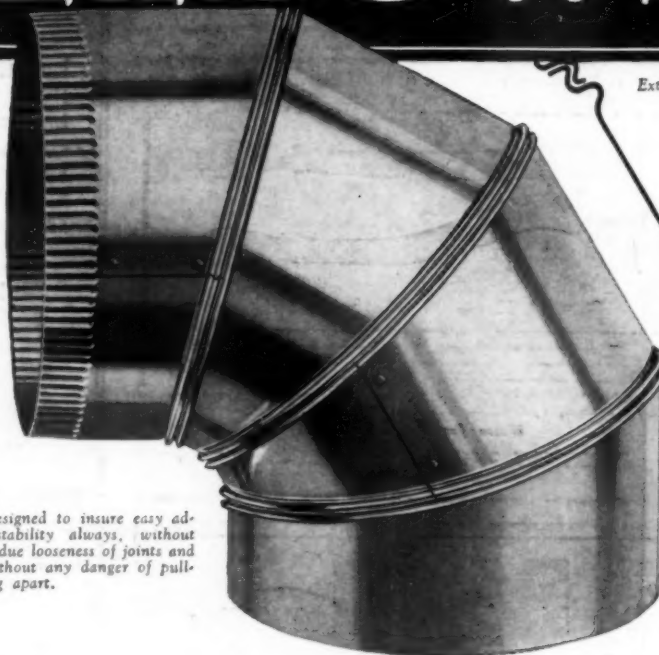


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